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AUGUST 1982 Vol 1 ISSUE 6

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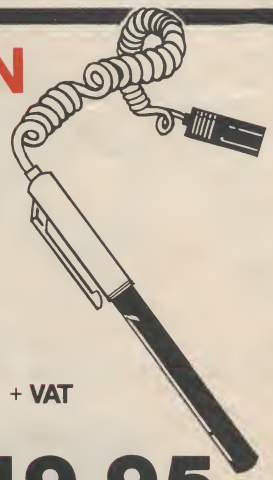

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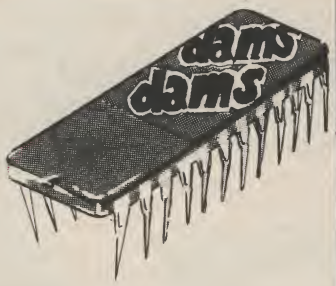

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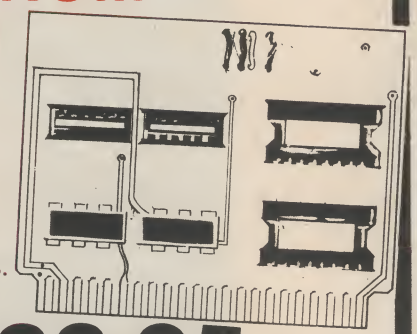

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Editor
Dennis Jarrett
Workers
Stacey Tanner, Hywel David, Kevin Elyot
Subs Manager
Annabel Hunt
Ad Manager
Cathy Lane
Production
Rock Storm
Art and design
Karen the Black Douglas, Paul Hulme
Old master
Julian Allason

Telephone: 01-607 9489 (all departments)

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All editorial contributions are welcome; material is accepted on an 'all rights' basis unless otherwise agreed. Enclose SAE if you want the return of original manuscripts and photographs. Please do not send listings: we only accept programs in cassette form.

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News

Stamp Out

On the 8 September the Post Office will launch two stamps to mark Information Technology Year. You remember Information Technology Year, surely? Anyhow, the stamps will be in 15½p and 26p denominations. Those philately phreaks wishing to acquire First Day Covers for themselves, employees or associates may do so by applying now to the Post Office Philatelic Bureau in Edinburgh, telephone number 031-556 8661.

Soft sell, hard cover

The editorial cat has long hair. It is summer (oh yes it is!). During the summer long-haired cats tend to shed a lot of long hair. This particular cat likes sleeping on the editorial Vic. No, we don't know why. But one effect is that the editorial Vic is filling up with cat hairs.

If you have any such problems, or if you're just a mite clumsy with the occasional coffee cup, what you (and we) very obviously need is a neat, rigid dust cover at a reasonable price.

Enter Softcell, who will sell you just such a thing for £9.95 plus £1.00p&p. The covers are naturally shaped to fit around the Vic, but they have slots at the back so you can leave your expansion cartridges attached. This product (it says here) provides far more protection than a soft cover and (it goes on) also enhances the appearance of the computer when in position.

Well, we'll have to take their word for it. We asked for one to look at with a view to recommending it positively; but some weeks later we still haven't head the promised review copy. Still, it does sound a good idea.

Softcell is at 10 Chichester Drive, Birmingham B32 1BP.

Back in February's issue of the magazine we printed a letter from Roger Cockfield that included an interesting and short effects program. We've only just noticed that it contained an error. Here's the correct version — try it for size!

We've decided to stop referring to the home base of Yorkshire Electronics as Moreley. That's because it's not Moreley, it's Morley. A much nicer place by all accounts.

Buy Basic book!

Start with Basic on the Commodore Vic 20 by Don Munro sounded just right, so we asked Tim Duncan to review it. The book is published by Munro's own Tiny Publishing Company at £4.95.

The Home Computer Revolution is here! Now that real computing power is within most people's grasp, some will no doubt be content to buy pre-packed programs, or copy them from magazines. But there will also be many who are stimulated by the challenge, and want to master the art of programming.

Don Monro's book is aimed primarily at the first time user, having been written simply and intelligibly for "real people". It is obvious that great care has been taken at least in the early stages of the book, to avoid the misunderstandings that newcomers are liable to make.

The book follows the same pattern as Monro's previous book **Basic BASIC** but has been geared specifically towards the Vic 20. The style is friendly without being patronising, although the implicit assumption that the readers will be male is something one should perhaps question.

The first few chapters begin very simply with the basics (aren't you tired of that pun!) of what a program is, arithmetic conventions and so forth. The reader is gradually introduced to essential concepts such as the ability to alter the flow of a program with GOTO statements, and the concept of variables. Each step is illustrated with examples and little exercises for the reader to do.

In general the explanation of commands and statements is good, and follows a logical path. In one or two areas the explanation is a bit hurried, as for example in the use of multiple comparisons in IF statements. The topic of nesting FOR loops also deserves more attention since in my experience, novices usually find this problematical. There is however an excellent summary of the points to watch when using FOR-NEXT loops, though this doesn't appear until th end of the chapter.

There is also a reasonable summary of all the commands and statements in the appendix. This will prove a godsend to those who don't fancy ploughing through the book, trying to find where a particular command was covered.

Towards the end the author introduces some more interesting ideas, including list sorting and graph plotting. The special features of the Vic are covered, with several programs illustrating the use of the sound generators and how to create moving graphics by poking the screen. All the programs we tried did work.

The book of course deals mainly with the syntax of Basic, and it is relatively weak on teaching the problem-solving skills that are necessary to program effectively. This is a general fault with most 'teach yourself Basic' courses, and I know of none which adequately deal with this aspect.

Given that reservation, the book does explain Basic commands in a clear and reasonable manner. The wealth of examples, including Don Monro's hmorous anecdotes about 9Kg canaries and Banana warmers, together with Bill Tidy's cartoons, help make the subject matter somehow less intimidating.

This is a worthwhile book if you are just starting out, and it should give the beginner little difficulty in grasping the basic concepts — a good basis on which to learn through experience. The clarity of the introductory chapters is a major point in the book's favour.

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VIC 20. The computer you won't grow out of.

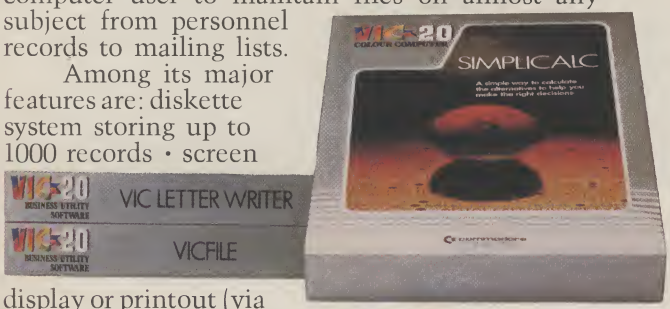
Programmers aids and software to expand your horizons.

The better you get to know the VIC 20, the more ambitious you'll become. And as VIC grows on you, the more you will appreciate the fact that it grows with you.

Here is some of the wide range of software available:

Practical Software

VICFILE is a powerful information handling system which allows even an inexperienced computer user to maintain files on almost any subject from personnel records to mailing lists.



Among its major features are: diskette system storing up to 1000 records • screen display or printout (via VIC printer) • alphabetic or numeric sorting option • multiple report formats • arithmetic capability • many disk utilities with all usual handling routines. Package available on diskette only. Requires 16K RAM expansion cartridge.

VICWRITER is a word-processing program which enables text to be created, stored and modified on the VIC 20 and then printed on the VIC Printer.

Vicwriter allows complete text editing, and can be used at home or in the office for letters, reports, memos, etc. It will type identical texts as many times as required.

Package available on cassette or diskette. (8K/16K RAM expansion cartridge also required.)

SIMPLICALC is an 'electronic worksheet' for VIC 20. It will accept numbers; display, calculate and recalculate them; and produce results based on previous calculations. It has all the functions of a powerful calculator, and will work in columns or rows creating totals and subtotals if required.

Its applications are unlimited; suggested uses are • General Business • Personal Finance • Household Accounting • Sales (Retail mark-ups, forecasts, etc.)

The package is available on cassette and diskette. 16K RAM expansion cartridge required.

Programmers Aids

MACHINE CODE MONITOR CARTRIDGE

A must for all Machine Code programmers. The Monitor helps you to write fast, efficient 6502 Assembly Language programs.

Main features include: Hex Dump • Register Display • Load & Save • Walk • Assembly • Disassembly • Relocate • Breakpoint.

In all, there are 18 commands to help you input and debug your own programs.

SUPER EXPANDER CARTRIDGE

Plugs straight into VIC or a separate Expansion Board and provides extra commands for High Resolution graphics.

Extra commands include: Paint • Color • Draw • Point • Key • Region • Character • Circle • Sound.

The package also allows you to create music, chords or single notes, in a five-octave range; enables the user to define the Function Keys; and provides an extra 3K RAM of memory.

PROGRAMMERS AID CARTRIDGE

Provides new commands to help BASIC programmers including: Auto • Re-number • Merge • Trace • Help • Find. Any program can be traced line by line as it executes.

A special key command allows Functions Keys to be redefined as BASIC commands, sub-routines or new commands.

Game Cartridges

The wide range of VIC 20 cartridges include all the best arcade-type games, as well as a new series of interactive "intelligent" games.

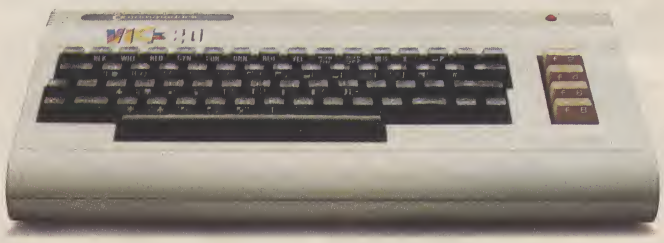
There are also several complicated versions of the famous 'Adventure' games, which require a great deal of time and mental agility.

Look out for the new cartridge and cassette-based games which are being developed all the time.

For more information

For full details of VIC 20, its peripherals and software, and your nearest dealer, contact:

The Commodore Information Centre,
675 Ajax Avenue, Slough, Berkshire.
Tel: Slough 79292.



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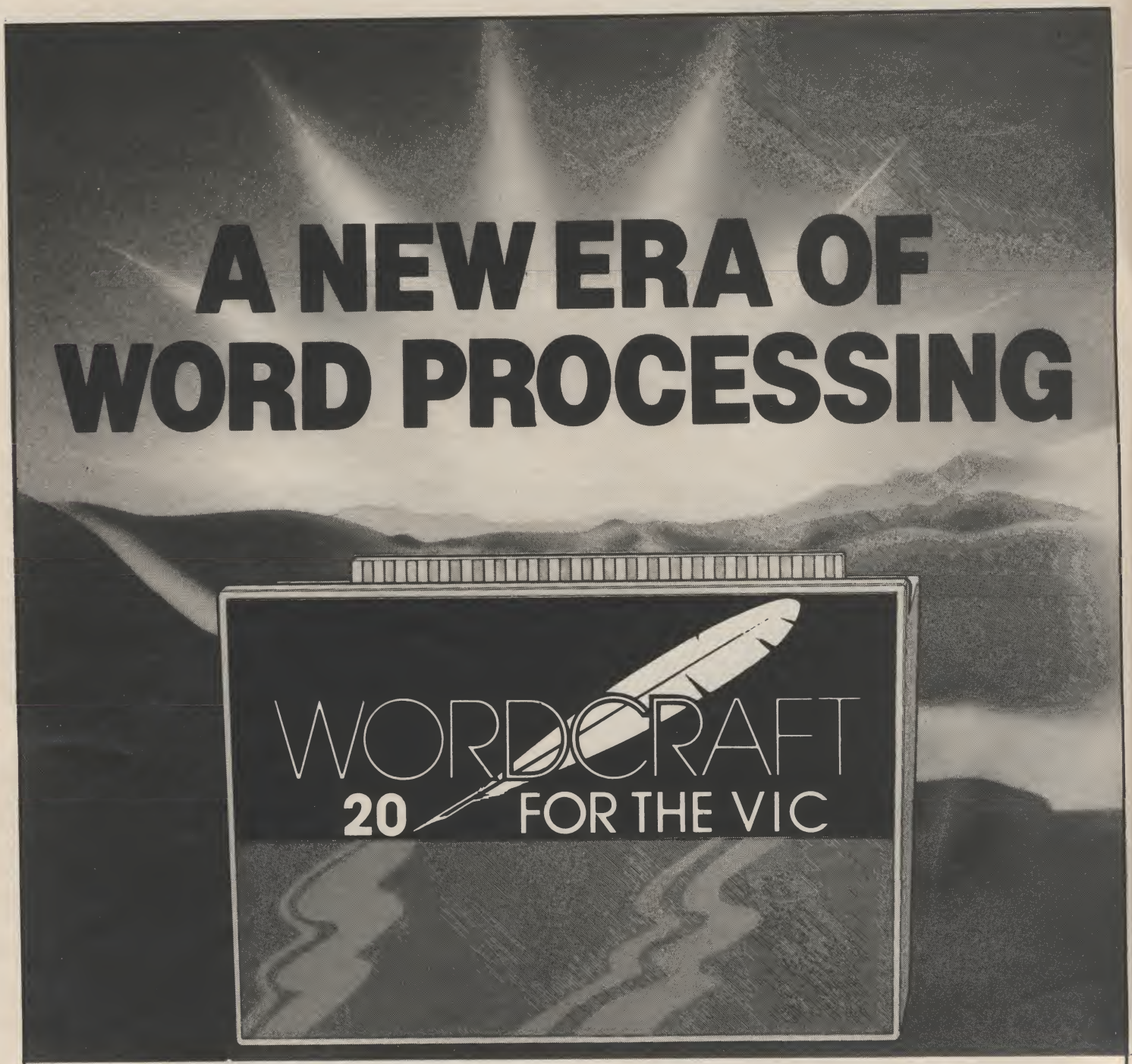
A NEW ERA OF WORD PROCESSING



The introduction of Wordcraft 20 for the VIC brings the benefits and advantages of full scale word processing directly to the general public.
Until now only the business world could afford word processing systems but this amazing price breakthrough makes it available to everyone.
Wordcraft 20 comes on a cartridge ready to plug into the back of the VIC. Included in the cartridge is an extra 8K of RAM that is also available for use with other programs – so not only do you get a word processor but you also get a memory expansion thrown in. The system also comes with complete documentation catering both for the inexperienced user and for those already familiar with Wordcraft 80.
Just look at these features:

★ Full use of colour and sound.
★ Full compatibility with VIC 1515 printer, parallel printers or RS232C serial printers.
★ Full control over margins, document width, tab stops, decimal tabs, justified output, multiple copies. Complete control of the final output.
★ Automatic underlining and emboldening.
★ Full screen display with automatic paging.
★ Full storage and retrieval facilities from disk and tape.
★ Full compatibility with Wordcraft 80.
★ Name and address capabilities – including labels.
★ Full document merging facilities.

Wordcraft 20. The package that the VIC user has been waiting for. A word processor of proven quality at a low price.
For the first time ever, every home can have one.

audiogenic LTD

Wordcraft 20: £125.00 inc. VAT and p&p. Available from all VIC dealers or direct from Audiogenic Ltd. PO Box 88, Reading, Berks. Tel: 0724 586334.
Wordcraft 20 is copyright P.L. Dowson 1982.

In Business

The Vic is great for games; it's also an excellent introduction to programming and to the use of computers in general. But you just can't keep a good computer down, and the Vic is too good a computer to be restricted to the kind of roles that Commodore originally envisaged for it.

More serious applications are emerging for the Vic. Add-on devices are appearing, memory expansion is becoming common, more and more software packages are being developed for business and other non-games uses. The Vic is starting to look like a sensible low-cost option for that kind of user.

Let's not go overboard on this: the Vic is a small computer, it is necessarily restricted in memory capacity and processing speed, and that means there will be many business applications for which it will always be unsuitable. But within limits the Vic can be a useful tool in business.

We intend to find out just where those limits are. Vic Computing will reflect this trend in its regular 'In business' pages. We will comment on new products as we hear about them, and we'll review the more interesting. We will look for and report on real-life business applications. We have commissioned a number of business-related programs that will be printed here; we will also put in any appropriate readers programs we receive.

We are looking for feedback from you, too. Write with queries and comments. Let us know what you want from this section of the magazine. And please tell us if you have interesting applications for the Vic!

Review: L&J stock control

List again gives the 'screen or printer' option and simply enables you to output all the records in a file. It's a bit cleverer than that, though, for if you select the printer it gives the option of 'labels or page'. There is a choice of label sizes; and if you go for the page print, you can elect to output name and address or just name and telephone number.

We could find no significant flaws in this program. Whether you actually need to computerise an address book containing what is a relatively small number of records is up to you — especially as we have yet to see labels of **any** size on offer for the Vic printer. But if you do find the need, L&J should be able to fill it. Contact 01-204 7525.

Inventory management on the Vic, even if it does demand at least 11.5K bytes of memory, might seem somewhat unlikely to any computer-knowledgeable person. But L&J Computers' Stock Control package promises as many as 110 stock records in systems with the extra 8K, 300 if you have the 16K expansion. So we were really interested to find out just how useful the Vic can be in what is after all one of the most sensitive areas of business.

Load and go. You start with a seven-option menu that looks remarkably similar to L&J's Address Book functions — as well as 'terminate', for instance, you can find out how many pages are still available and you can list all the records on file at the screen or on the printer. 'Access file' is also familiar; you use it to get at an already created file.

So 'create' will be the first option the new user picks. You can create, enlarge or amend. Enlarge means adding new entries to an existing file: amend involves specifying an existing record by typing its item description (or enough of its description to identify it uniquely) and then altering the data on that record.

Creating means entering a description (up to 21 characters), selling price and cost price (no more than £999.99), quantity in stock, minimum stocking level, and stock on order (all to a maximum of 999 units). Those are pretty severe restrictions, of course: you can't sell anything costing £1,000, and you can't have a thousand of them on your shelves.

Screen entries are displayed when you have completed them, and you may accept (in which case they are written into memory) or reject them (in which they're erased and you can start again). When you've finished, you type 'END' and the program asks you for a name under which those records can be filed on tape.

The 'search' alternative in the menu provides the reporting facilities. You can tell the program to look for an individual record, by specifying the first-line description of the item. Importantly, you can also list all items where stock levels are below the re-order point you've nominated in their record.

There is also an option for calculating and displaying 'total stock value'.

Well, it's a real stock recording system. And if you were to get the habit of running it every week or every month it could well help you manage your inventory — providing you don't have expensive or extensive stocks (in which case you probably ought to buy a fancier computer in any case) and always supposing that you actually need to automate the recording of 110 items in the first place.

That is not a flippant observation. Apart from the fact that many businesses do want to computerise even that level of stocking, there is the consideration that maintaining computer-based records imposes a discipline that more than a few of us could well do with. This consideration could well be the most important factor in using even a Vic for business.

As to the package itself, is there anything significant that it is missing? Well, most of the extras would be impossible to provide on such a small computer. It would be nice to have some kind of automatic warning when an item is about to hit the re-order point: it might be helpful to have a report for the value of stock on order: it could be useful to have some kind of profitablilty analysis based on cost and selling price: in an ideal world, the computer might use the historical information about cost price and inventory turnover to set (or at least to recommend) the best re-order level. But all those things would almost certainly require disk storage and more memory. You pays yer money and yer takes yer choice . . .

L&J is at 01-204 7525.

Review: Address Book

L&J's Address Book is a £99.99 tape that allows you to set up a file of 50 names and addresses with an 8K expansion memory (150 if you have 16K attached). It is probably based on an earlier program for the Pet; there's a tell-tale 'copyright 1979' message at the beginning, and in 1979 the Vic was barely a gleam in its parents' eyes. Nor does it make the fullest possible use of Vic's sound and colour. But at least its provenance does imply a degree of maturity, which can't be bad.

This is quite a full package, and could probably be used for other types of record-keeping too. It also has decent instructions with it, which is by no means always the case with low-cost microcomputer software like this.

The opening menu gives you six choices. 'Access file' means you intend to use an existing file previously saved on cassette; once the tape is loaded, you will be told how many free pages you have left and the main menu will be displayed again.

'Create or amend' is self-explanatory: you'd use this to set up your first set of names or addresses or edit an existing taped file. When you have entered this function you'll get another set of options — create, amend or enlarge. 'Create' lets you enter name, three address lines, "other details" (which we found we were consistently using as a fourth address line), and a phone number.

Lines can each be up to 20 characters, and the INST/DEL key can be used as normal for correction.

When one address has been entered the screen displays it for your acceptance. You get the chance of accepting it completely or rejecting it — in which case it's erased completely. It might have been preferable just to let you amend the offending line. Accepting it gives you the opportunity to enter another record; and so on, until you type 'END'. Then you'll be asked to assign a name to your file, and it gets written on to tape. On completion the main menu returns.

As for those other two options at this stage, 'enlarge' lets you append more records to an already created file. 'Amend' lets you specify a character string for which the program will search through its existing files. You can then alter the record (if it's there!).

Back at the main menu, the other principal alternatives are search, list records, indicate pages available, or terminate. The last two are self-explanatory — though it's worth pointing out that using 'terminate' or hitting the 'STOP' key both prohibit you from running the program again without reloading it. Very irritating!

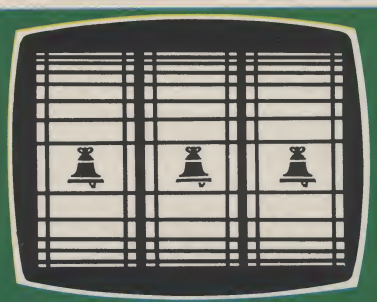
Search enables you to specify whether you want the record to be printed or only displayed on the screen when it is found. You can search for a name (the first line of a record) or an area (which is assumed to be what's on address line no three). This function will display and/or print all records that fit the criterion nominated.

Basic business computing

Adda, which one of the bigger and sounder dealers in the Commodore camp, has put together an 'introduction to computing for business' course that looks quite good — and provides participants with a free Vic.

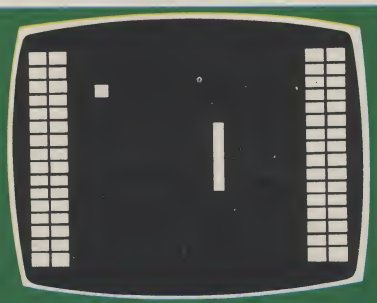
This "unique" course, says Adda, was designed by businessmen for businessmen (and women too, we don't doubt). Attendees will all be complete beginners in computing, apparently: "Whether you are a manager in a large business, or running your own small business, this course will take you through the subject of business computing from scratch".

It is intended to teach you how to run simple but highly effective versions of word processing and financial calculating packages. It will also introduce you to the ideas, and the practicalities, of writing your own programs, says Adda. The Vic connection is that it is all done on machines which are yours when the one-day course is finished — yes, you get a free Vic.



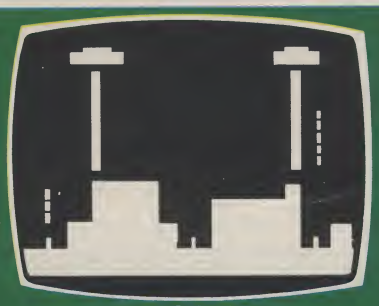
1. FRUIT MACHINE:

This is a computer version of the popular "one armed bandit", with three reels, Nudge reel, and Hold, Nudge and Gamble functions. Incorporating the VIC's normal graphics, colour and sound, it requires an expanded VIC (3/8/16K).



2. BRICKDOWN:

A variation on the game "BREAKOUT"; using the keyboard or a joystick controller manoeuver the bat to try to break through the right hand wall, while protecting the left wall. Requires basic or 8K VIC.

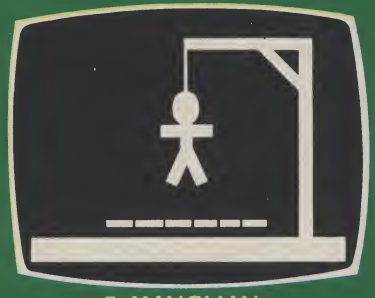


3. BLOCKADE:

Using joystick or keyboard, control your missile base to destroy incoming enemy missiles and protect your fuel dumps. Game ends when you are hit or all fuel dumps destroyed. Uses defined graphics, colour + sound. Runs in basic VIC only.

4. ROULETTE:

Complete with accurate full colour "MONTE CARLO" roulette table, you can break the bank without risk of personal loss! Complete with list of odds and allowed bets, you are given £5,000 to play with. Game ends when you lose your shirt. Runs in any VIC, with colour and sound.



5. HANGMAN:

Play the computer at this version of the popular pen + pencil game. The VIC has a built-in vocabulary of 50 words, to which you can Add, Delete or Replace your own words. Addictive, with colour + sound. Runs in any VIC.

6. TARKUS:

With the joystick or keyboard, control the stretcher bearers to pick up the wounded men, and return them safely to the red cross base. If you are hit by an enemy missile, however, you join the wounded, on the field! Challenging and addictive, with defined graphics, colour + sound. Runs in basic VIC only.

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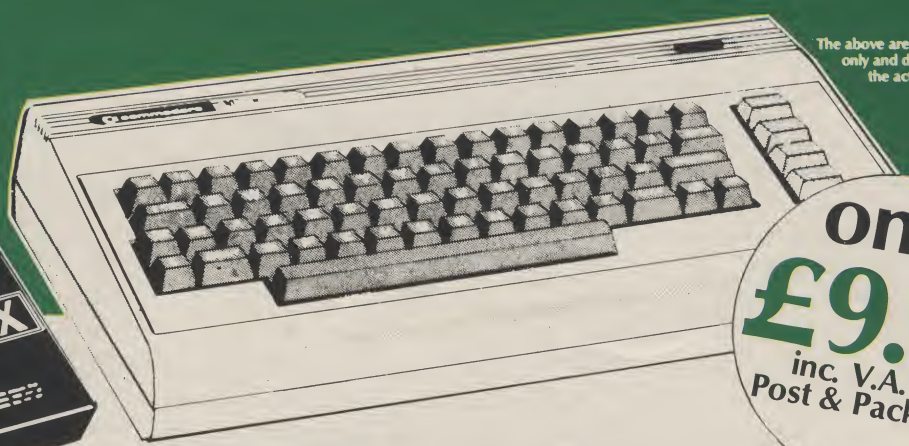

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In Business

Adda promises enthusiastically that the instruction will be given by businessmen "who know what you want to do "rather than try to impress you with computer jargon. The syllabus looks reasonable, with a 10.00am start on "connecting up your equipment" and "learning about the keyboard" and "what the equipment does".

Word processing follows, then there's a solid-looking introduction to the concepts and usage of spreadsheets — the financial planning and budgetting tools that have been so effectively popularised by VisiCalc (through on this Vic-based course it will be Simplicalc that is covered).

There's a buffet lunch "with wine or beer" followed by practical work on Simplicalc. Actually writing programs in Basic doesn't happen until the middle of the afternoon, which is probably the best approach to take in a businessperson's introduction.

The course is organised by Adda's training division on 0926 496156. The fee is £690, which might seem a bit steep for a one-day course — even if there's an awful lot of wine or beer. But as well as an education, you do get a number of freebies. The fee includes a Vic with 16K expansion memory, cassette deck with ten blank cassettes, the printer, a joystick, and some other extras like dust covers and the **Introduction to Basic**.

As well as the programs contained in that, two businessman's programs are included in the course fee — Simplicalc and Vic Writer. There is also **The Business Program,** a specially adapted version of a program by Mike Gross-Niklaus for the Vic 20 and this training course. With simple amendments it can be used for working out quotations, the amounts of material required for jobs, assessing work performance by employes. A copy of this program on tape is only available by participating in the course.

Simplicalc we have under review right now. It looks pretty versatile, and shows relatively few restrictions despite the memory limitation. Vic Writer we aren't so happy about: as a word processor it looks distinctly limited. Still, it will probably provide an adequate introduction to WP.

Packages on the Vic

We wrote about two of the new Comodore offerings back in February — VICFILE and SIMPLICALC. The latter is a financial spreadsheet calculator, characterised by Commodore as an "electronic worksheet" for the Vic": you set up an area, which is immediately ruled into columns and rows. You can write on it, put numbers on it, perform calculations on these numbers: and, most important you can erase, alter or rewrite any part of the information you have inserted.

It can be manipulated by the computer's screen as a window through which you can view any part of the sheet. The column/row layout enables you to reference every different location on the sheet and all the information on it whether these are visible or not.

The data is aligned to the left of the column for letters and to the right for numbers. The final size of the sheet can be up to 100 columns and rows or as little as 3 columns and 19 rows.

SIMPLICALC can automatically calculate and recalculate values: and it can produce, on demand, results dependent on previous calculations. It can add, subtract, divide, multiply and raise a value to a certain power. You can perform calculations on the columns, or rows, or parts of them, to produce totals and subtotals. If requested, SIMPLICALC can move the contents of a column or row or any part thereof to another location on the sheet.

The use of SIMPLICALC is "almost unlimited", say Commodore, but applications include Cash Flow Analysis, Balance sheets, and sales analysis.

Products like this are especially good at 'what if' speculations. Because of its calculating power it is easy to explore the effects of such things as changes in interest or commission structures.

SIMPLICALC is available at £19.95 for the cassette version and £24.95 for disk. "The facilities that are afforded by this package will more than justify your investment", proclaims the vendor.

VICFILE claims grandly to be the first comprehensive information handling system designed specifically for the Vic 20 computer: "VICFILE provides many features normally only found in data-base management systems costing ten times as much". Typical applications include the maintenance of personnel files, recording personal cheque transactions, producing mailing lists for business customers, keeping an up-to-date inventory of home freezer contents, cataloguing coin/stamp/record collections, and "many, many more".

That list of course comes from the Commodore handout, but VICFILE's pedigree suggests that it could well be an accurate enough summary — it was written by Stage One, who based it largely on an existing Pet database package of theirs called The Manager.

We have yet to see VICFILE in action. But on the face of it, VICFILE's most important attribute will be the ease with which it can be tailored to meet the needs of a variety of applications both in business and the home. This is achieved by various options which allow the operator to specify how he or she wants the information to look when printed or displayed.

VICFILE is a diskette-based system: up to one thousand records are stored on a single disk (the actual number depends on the number of items within a record). These records are stored in a data file, much as you would store information in a filing cabinet. Records can then be called up from the file, displayed, and/or printed.

An option enables the records in a file to be sorted into ascending alphabetic or numeric order using any item of information within the record as the basis on which the sort is made. A further option allows a file to be searched and records selected that match pre-defined conditions — up to five conditions may be defined.

VICFILE looks like a powerful data management system which should enable even an inexperienced user to maintain an extensive and elaborate filing system. It will be available from your local Vic stockist "within a few weeks" for price £24.95. Note that it requires the 16K memory expansion.

Updates

Several people have complained about the fact that some line in the **Character Editor** program (April 1982) are just too long to enter — the Vic's limit being 88 characters per line.

A sneaky trick... No, not really. You can use abbreviations to enter several of the Vic Basic commands; and as most of these are two characters rather than four or five, you can apparently get over-length lines. For instance, 'P' and shifted 'O' is a short form of 'POKE'. All the abbreviations are summarised in Appendix D of the Friendly Computer Guide.

The April issue also contained a few spurious extra lines which for some reason attached themselves to the bottom of the listing for **Electronic Disco.** Just delete everything after line 999.

The same thing happened to **One-Armed Bandit** in this issue (we think it's a funny in the printer connection which happens sometimes when the wind is in the east, unsuppressed dumper trucks are driving by, and the cat is lying on the keyboard). In this case line 10010 is the last of the program, so forget everything following it.

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A Punter's Progress
by J D Collins

At Vic Computing we get a lot of letters from readers — and most of them come from JD Collins of South Woodford. His aspirations and his frustrations with Vic seem to typify the position that many raw beginners find themselves in; so we asked him to put down his thoughts for the benefit of the wider world.

Punter's Progress will appear regularly from now on, charting the development of one novice from wide-eyed enthusiasm past mind-numbing misery ("why won't this program work?") and blank-eyed puzzlement ("what do those symbols in the program listings mean?") towards — hopefully — a calmer and more mature apreciation of what computers in general and the Vic in particular can and can't do.

Comments from us at the end of the piece.

All my life I have had this love/hate relationship with things electronic. I just love gleaming banks of switches and dials and flashing lights. But they haven't loved me in return. In fact, I can't think of anything electronic that I've had more than a passing acquaintance with that hasn't gone kaput. As for actually understanding how they work...

Yet still LED's and VDU's and pushable buttons intrigue me. How I yearned for a pulsating kaleidoscopic responsive Something that would interact with ME. Something I could control but which would still excite and surprise: something to fiddle with. You know, a **computer.**

I could also see that boring old job security was at stake: computers may not inherit the earth, but people who can handle them certainly will.

And whilst I might be a bit late getting on the bandwagon, I could at least make an effort.

Maybe I'd even get round to cataloging my science fiction books. I'd always promised myself I would. I could see it now: summoning up all those hard-to-remember quotes and references with a flick of the finger ... zap! "I hear and obey, Master."

Now, I knew you could buy computers, Pet's and suchlike; but they all seemed expensive and hard to understand. And anyway they had boring green screens. Then Clive Sinclair brought out his ZX80, and those itchy fingers started itching — know what I mean? Still, it wasn't attractive enough; and it wasn't exactly Deep Thought, either, was it? Along came the ZX81 and the thought occured to me that maybe the time had come for investigative action. Six months of intelligible micro magazines told me that 5K was good but 50K was better, and that the Vic 20 was about to enter our lives. It was make-your-mind-up time.

Money and ignorance being the main problems, I had originally opted for the ZX81. It was cheap enough to risk making a big mistake with — whereas the Vic 20 seemed a bit too sophisticated for a novice like me, despite having all those lovely colours and sound generators and such like.

I was saved from a fate worse than death by a shy little comment in one of the magazines about the ZX81's flickering display, and that was that. I can't stand flickering anything, so goodbye ZX81 and hello Vic 20. Oh — I knew there were Acorns and Apples and other such fruits of Silicon Valley. But the Vic seemed to have got it altogether nicely, thank you, and the Micro press were giving a lot of good publicity to this newcomer.

One more step: down to the Cunard Hotel for last year's Comodore Computer show to have a quick chat with someone and see what Vic could do. Looking back on it, there wasn't much to see: Commodore hadn't exactly pulled out all the stops on demonstrations and suchlike, had they? That show was nearly a big mistake: being on your own in a hot, crowded computer exhibition and seemingly the only person asking stupid questions can be a bit offputting. All the guys and dolls in charge of the various stands were very friendly, however, and most of you seemed to be enioying yourselves, so I took the plunge.

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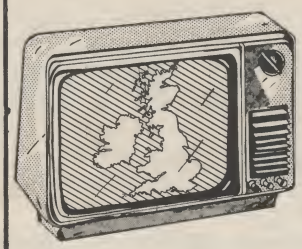

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Beginners

Adda Computers were the lucky recipients of my precious deposit (and I suppose I have to admit that it wasn't really their fault that Vic didn't move in till Christmas). Today, Basic: tomorrow the World! Within hours I'd be a computer whizz kid, the envy of my friends.

I could see it all. Fame, Fortune, Secret Knowledge! And I really thought that the **Friendly Guide** supplied with the Vic would be adequate for all my needs, unless some very clever programing was to be done.

Does that sound naive? Well ok, but the publicity does lead you to think it's all there at your fingertips, doesn't it?

As it happens, I think the standard of literature supplied for the complete beginner is very poor indeed. The style of the **Guide** is exactly right, but the content is unbalanced: it is simultaneously too advanced, yet not advanced enough.

For example, all the appendices must be marvellous if only you knew how to use them. I certainly couldn't! I defy anyone starting out in computers without help to bridge the gap between the Hello-Cheeky style of most of the **Guide** and the pages of hieroglyphics at the back.

What's needed, and it should come with the machine, is something which combines the style of the **Guide** and the structured contents of Commodore's **Introduction to Basic Part One** — in other words a complete beginner's guide to the Vic, thoroughly cross-referenced and with a list of things to use the Vic for on page number two. (I still find it hard to answer that awful question "But what do you do with it?".)

It wasn't all bad. The parts of the **Guide** dealing with the keyboard, simple print statements, and the occasional colour blob (to see what it looked like) were great — really made you feel you **could** take control.

But then came the letdown. You had just enough information to show you that something could be done, but not enough to really show you how. I spent hours POKEing like crazy, hoping I'd find the magic number that would set my screen alight.

Maybe that's being a bit dramatic, but I didn't think anybody could. Yet I think the expectation that you should be able to, given a decent handbook, is not unreasonable. Look — Commodore is aiming the Vic 20 at the first-time computer-naive non-technical market, and the basic computer and the **Guide** are not enough!

This is turning into a catalogue of complaints, but hold on for a while. My next hang-up was, as far as I can tell, simple errors in the text of the **Guide.** Mister Commodore, Sir: do you know how soul-destroying it is for a novice to find a program doesn't work? Well you should. Your elementary texts **must** be perfect. At the later stages we can tolerate some errors, but not in the beginner's stuff. I could weep over those lost hours keying in the **Guide's** games programs — they didn't work, of course ...

Anyhow, by this time it was all too late: I was hooked. Push, push, print, print — it was all there, I only had to get it together. I could tell that the **Guide** was not enough, or at least not in the right order or something, so what about Tim Hartnell's book **Getting Acquainted With Your Vic 20?** Ideal, right?

Well, so I thought. I can't wait to get my hands on him! Remember what I said about electronics not loving me? Well, after trying Hartnell's Random Number instructions, I naturally thought I'd got a sick Vic and carted it all the way across London for medical assistance — only to be told to take Tim Hartnell's book with at least one pinch of salt. Supposing I don't know what salt is, or where to get salt?

May I recommend instead **Starting With Basic** by Don Monro? It seems quite good and it has cheerful Bill Tidy cartoons.

Errors in micro literature seem to be the bane of a beginner's life. I can see the arguments for learning by your mistakes, but at this stage in the game it's not a workable proposition. Surely I can't be the only newcomer to computing and the Vic with these problems. You are not alone!

Many of my original hassles are now over — like where to find all those colour and cursor controls, and what their symbols look like in print in the magazines. (It may be impractical but can't programs be printed slightly larger than normal?) I still have a lot of unanswered questions, and even more vague feelings of dissatisfaction which haven't quite crystalised into definite questions. Maybe it will all sort itself out in time.

Thanks be that **Vic Computing** published 'Bouncy'. It was the first games program that I managed to get working, and which was hard enough to be worth playing (even though strange things do happen to the bouncing ball every now and then). It made it all seem worth while. Finally I'd seen something that looked like the computer action I'd been expecting.

All this might sound like a bleeding heart to those of you with kiloyears of computing behind you. But when I'm on my own with a strange machine and an obscure error message it can all be very upsetting and very disturbing to my flatmate when I hurtle through the house mumbling and burbling for solace in a bottle of cheap vino.

By the way, I still haven't entered 'Rhino' does it work?

© J.D. Collins 1982

More next issue!

Editor's comment

That diatribe against the **Friendly Computer Guide** has been echoed by many of our readers. The point is not so much that the thing is bad in itself, more that it doesn't go far enough once you've got past the 'switch on at the on/off switch' stage. And it's certainly badly designed (it **is** difficult to make the transition from the hearty all-pals-together main chapters to the terse and technical appendices). Maybe **Vic Computing** should do an alternative?

As for Tim Hartnell's book, we are extraordinarly pleased to report that Mr H recognises its deficiencies and is revising and correcting the work. Apart from anything else this means he can now lay off his bodyguards.

You can find our own views on Don Munro's **Starting with Basic on the Vic 20** elsewhere in this issue: our reviewer liked it.

It isn't always impractical to print programs larger than normal size, and where possible we'll start doing that. 'Bouncy' is good, isn't it; and yes, 'Rhino' does work.

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A.S.K. announce the first four programs in a series of educational cassettes for the VIC 20. These programs have been written by a team of teachers and professionally programmed specifically for use in the home.

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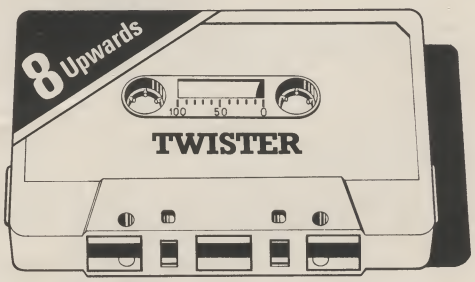

Twister. A geometric puzzle that will tie you in knots, testing and improving your thinking skills and powers of concentration. The purpose is to rearrange coloured squares so that no row or column contains a repeated colour. Set your own puzzle and test the whole family. Suitable for children aged 8 and upwards.

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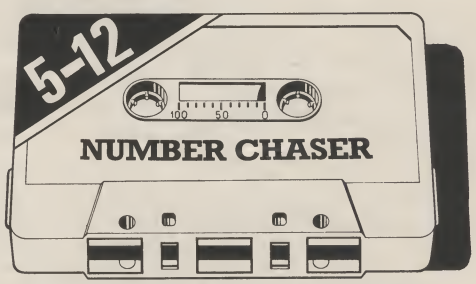

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Todd's Lore

by Mike Todd

When using POKEs to write direct to the screen, it is essentially to know the address of the first screen location, especially as both video memory (that is the memory which holds the code for each character on the screen) and colour memory move about. When the Vic is switched on it makes a note of the address of video RAM in location 648 and this can be used to allow a program to determine where these two areas of memory occur.

By using the following two lines at the start of programs requiring access to the screen it is possible to allow for the various configurations of screen memory that could occur. Note that VM is the start locations of the normal screen memory and CM is the start address of colour memory:

```
10 VM = PEEK (648)*256
20 CM = ((PEEK(648) and 3) OR
   148)*256
```

They would be used as in these examples:

```
1000 POKEVM+(character
     position), (character code)
1010 POKECM+(character
     position), (colour code)
```

This last calculation is based on the way the Vic itself converts a video RAM address into a colour RAM address. If you find that you would prefer to calculate the video RAM address and convert it into an equivalent colour address, use DEF FNC(X)=(XAND1023)+37888 at the start of the program and use something like: V=video RAM location, POKE V, character and POKE FNC(V), colour.

Don't forget that the "X" used in the function definition is a "local" variable and does not change any current value of "X" already calculated in the program.

There are currently two major books on sale covering the inside workings of the Vic. There is **Vic Revealed** by Nick Hampshire, and Commodore's own **Programmers Reference Guide.**

Vic Revealed, as many will know, has some errors of fact, typing errors and just plain awful presentation. It is a tragedy since the content of the book is potentially very useful: it is just spoilt by an apparently lazy apprach to editing and proofreading.

Fortunately, the book is to be republished soon hopefully with the errors corrected. If the new edition is accurate and better presented, it will be a very useful book indeed, covering aspects of the Vic which are not published elsewhere.

The **Programmers Reference Guide** also has errors (not as many as **Vic Revealed**) but is very much better presented and contains more material. This book is actually from Commodore in the USA; and when Commodore UK saw it they weren't happy with it. But demand was quite strong and so Commodore did eventually release it — though the difference between the originally quoted price of £14.95 and the actual price of £9.95 reflects their concern over the contents. Some retailers appear to be selling the book at £14.95, though while Commodore has confirmed the price of £9.95 and that the book has always been sent out for sale at this price. It follows that any dealer selling the book at the higher price is taking advantage of the situation, and I would recommend that anyone who has bought it at £14.95 should take the book and the receipt back to the dealer and ask for the difference to be refunded (although I must stress that there is no legal obligtion on them to do so).

This POKE/SYS sequence is required to downgrade the Vic:

```
POKE641,0:      POKE642,X:
POKE643,0:      POKE644,Y:
POKE648,Z:      SYS64824
```

X,Y, and Z are determined from the following table:

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Todd's Lore

Downgrade to:	642 X	644 Y	648 Z
unexpanded	16	30	30
+3K only	4	30	30
+0K	18	32	16
+8K	18	64	16
+16K	18	96	16
+24K	18	128	16

You will probably know that line numbers greater than 63999 produce a SYNTAX ERROR. Try entering a line number 350720 — the results are interesting and have the same effect as hitting the RESTORE key. It is actually due to a bug which also exists on the Pet and the Apple, and it must be the fault of Microsoft who wrote the Basic interpreter in the first place.

Despite all that has been written on the subject of the function keys, there still seems to be great confusion as to their use.

These keys are like any other key on the keyboard (with the exception of the RESTORE key which is treated totally separately). Sixy times a second the keyboard is scanned by the Vic: and when a key is pressed, a number representing its position on the keyboard is placed in location 203. If the key was one of the special control keys (SHIFT, CBM key or CTRL) it is identified and a special code (1,2 or 4 respectively) placed in location 653 instead.

If you use a simple program like

```
10 PRINT PEEK(203):GOTO 10
```

You will see that this location holds a value of 64 if no keys are pressed, 1 if the number "3" is pressed, 39 if Function key 1 is pressed, and so on.

Unfortunately this code bears no relationship to the actual character. So this value is used to access a decoding table: the tale starts at 60510, 60575, 60639 or 60835 depending on which control key is also being held (the first being for no control key, the others for SHIFT, CBM and CTRL). The value in 203 is added to the start of the decoding table and the contents of the resulting address is the character code.

This can be done in Basic by PEEK(60510 + PEEK(203)); and by using PRINT(CHR$(PEEK(60510 + PEEK (203))), the actual character can be printed.

The character codes produced are similar to the ASCII codes (ASCII is the American Standard Code for Information Interchange) with character "A" = 65, "B" = 66, and so on. 0-31 and 128-159 are designted control characters for instance character 13 is the RETURN key, character 28 is "select RED colour" and 147 is "clear screen".

The function keys are no exception to this. They produce ASCII codes of:

133	137	134	138	135	139	136	140
F1	F2	F3	F4	F5	F6	F7	F8

GET T$ can be used to identify if one of these keys has been pressed as follows:

```
10 GET T$
20 IF T$ = CHR$(133) THEN
PRINT "F1 PRESSED"
30 IF T$ = CHR$(139) THEN
PRINT "F6 PRESSED"
40 GOTO 10
```

This is as far as a Basic program can go in using the function keys. On the other hand, machine code can be written to intercept the character routines and produce a string of characters as soon as a function key is pressed. This is quite a complex programming task but is certainly not impossible.

Fortunately, both the Programmers Aid and Super Expander cartridges contain this machine code and have character sequences already built in to these keys. These can be defined by the user simply by typing KEY1, "THIS IS A TEST STRING": and whenever F1 is pressed this string will be generated.

You can even incorporate a carriage return (which you will remember is ASCII character 13) by KEY1, "LIST" + CHR$(13). This sets F1 to produce the same sequence as though you had typed LIST and RETURN at the keyboard.

Thus you can see that the function keys are programmable, exactly as Commodore told you they were. It's just that it's very difficult to make them do anything special without resorting to machine code or buying one of these two cartridges.

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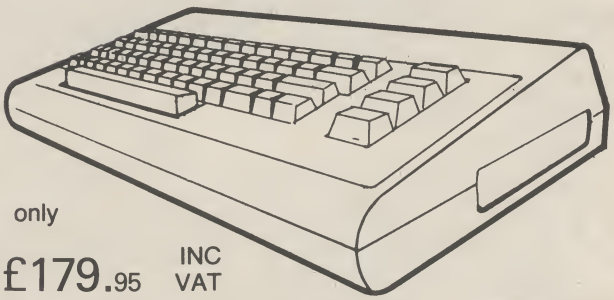

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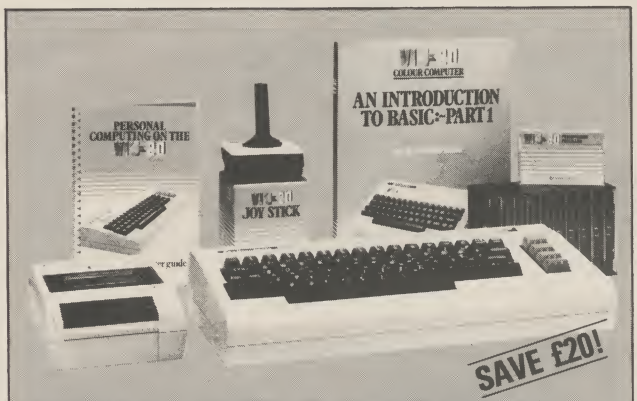

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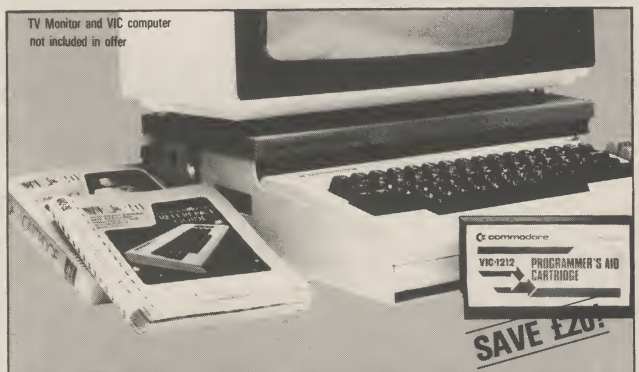

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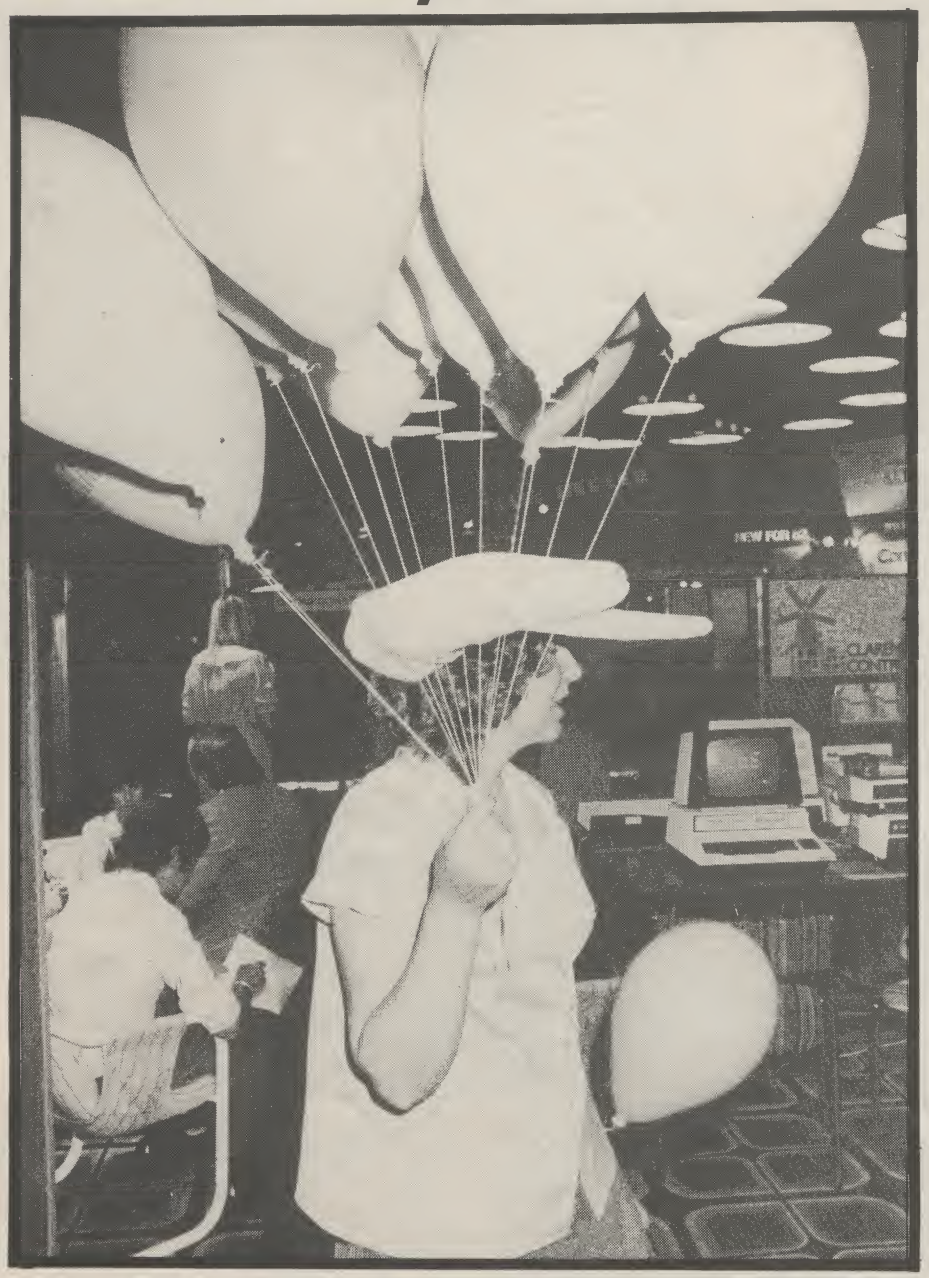
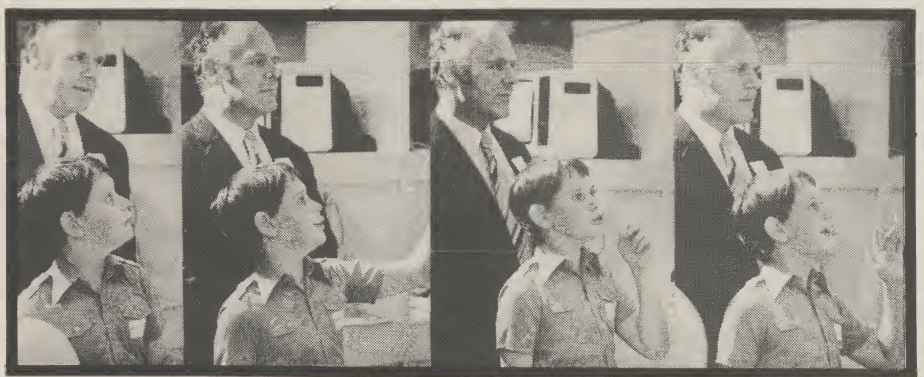
Exhibitionism in Hammersmith:
three hot days in June





The Third International Commodore Computer Show found itself with three of the hottest days in June and all the amenities of the Cunard Hotel, Hammersmith to contend with. Nonetheless, the trek into West London was worth it for most people (especially those who won our 'beat the rhinos' competitions!)

Said amenities included an air conditioning system that had to be turned off every few minutes to cool down; so the exhibition space was less than perfectly comfortable. But there weren't too many complaints from the punters — there was a good deal of variety, lots of 'hands-on' products to try, some of the Pet systems dealers had spent time and trouble on their stands just for a change, and overall there was an air of slightly smug professionalism about the event. Not before time, too.

Though the Vic played second fiddle in this show to its bigger brethren of the Commodore 8000 line, several stands had Vic goodies to show.'

Including Commodore itself, of course, which might reasonably have been expected to fill the place with its new computers: see our report from Hanover Fair in the last issue. Indeed there was an exhibit with the top end machines, majoring particularly on the £2,000 plus Commodore 720.

But where were the smaller machines?

Commodore had occupied two whole pages of the show catalogue with an ad for the Vic 10. One searched the show in vain for a sight of this £100 games computer though; and now we hear that it won't actually appear as the Vic 10. Instead it'll be called MAX (the original name was Ultimax, remember?) and we might get to see it around Christmas time.

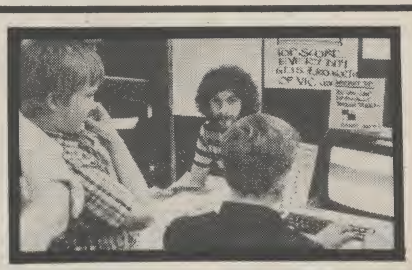
Nor will there be a Vic 30. Remember the Vic 30? That's the 16K 40-column version of the Vic 20. Or at least it was. Our spies now tell us that the idea has been discreetly shelved. Instead the next model up will be the Commodore 64 (more or less a 64K version of the 40-characters-per-line Vic). This is another of those computers Commodore announced at Hanover.

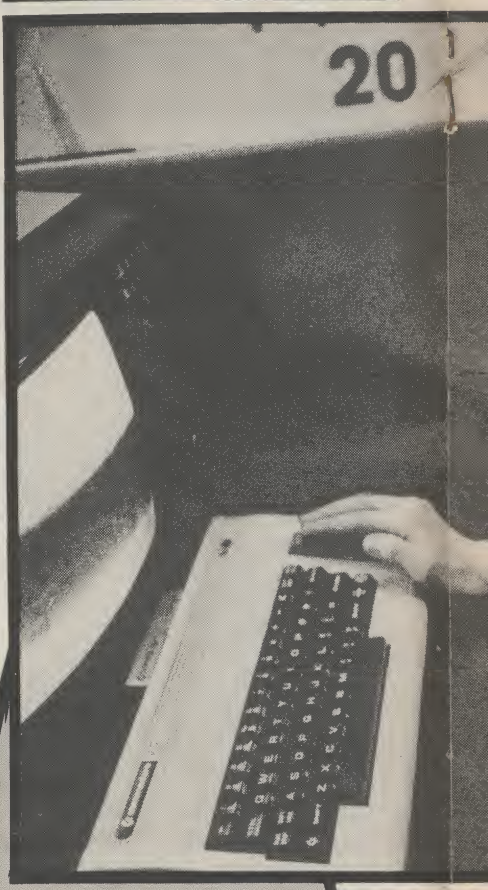
Confused? You won't be. Come Christmas time, we'd guess our stockings will be offered the choice of Max at £100, Vic 20 at say £170, and Vic 64 at around £240. Nothing else.

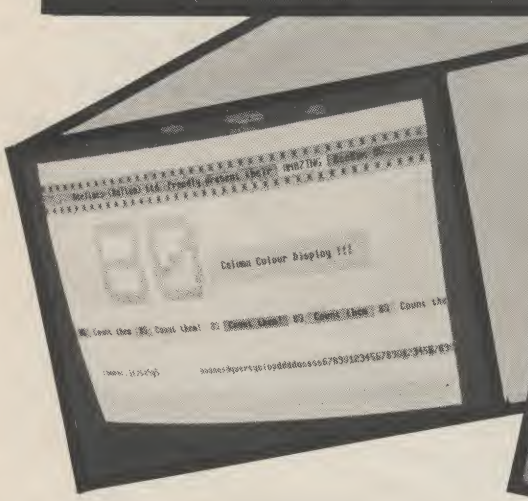
As for the rest of the Commodore world, things seem to be buzzing. We look at some of the newish ideas in 'business' software for the Vic elsewhere in this issue. But also at the Show this lot impressed us (in no particular order of preference):

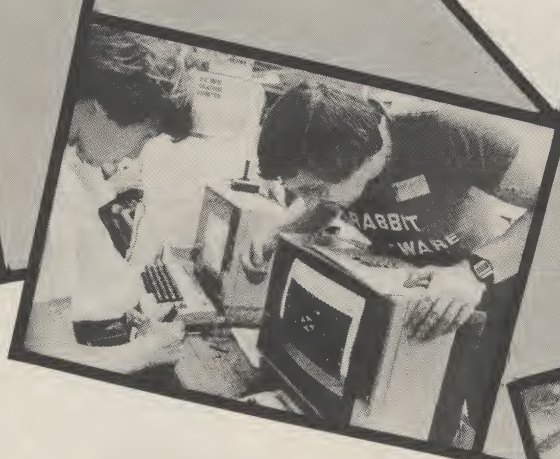
DAMS: the Liverpool-based supplier of things for the office also does computers, and was showing the cheapest Vic light pen we've seen. Or at least, we would have seen it if DAMS hadn't sold out of its stock by the time we found the stand. The price is/was £19.95.

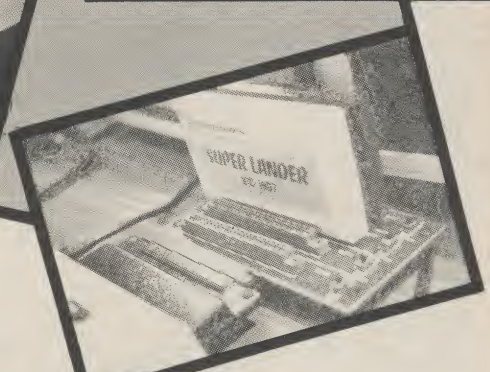
Beelines: goes from strength to strength, and in terms of Good Ideas for Vic Add-Ons vied with Datatronic for the **Vic Computing**

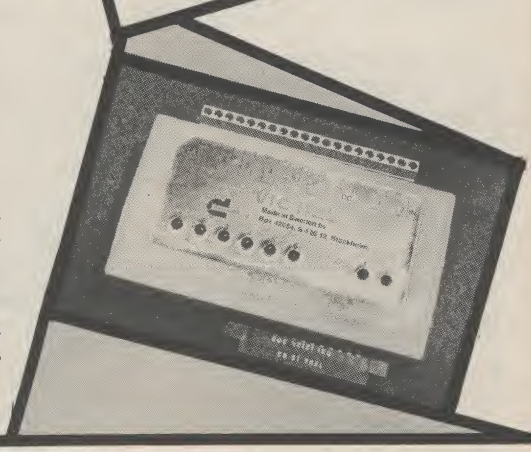












'Best in Show' rosette. Remember the black box that sits under the Vic and gives you a 40-column screen with another 32K memory and Prestel-type graphics? Well, it's grown up a bit into the Beelines Beebox — complete with new name and go-faster stripes along the side. The Beebox gives you a memory-mapped extension to Vic with a mini operating system to drive the colour display cards you can put into it: £253 for the 2K-plus-40-columns display, and you can now have an 80-column version at just under £450. With that you can fool Vic into thinking its a Commodore 8032 with colour, though you need an RGD monitor rather than a TV (Beelines sells one for £316).

Other slot-in goodies for Beebox are a modem and an RS232 interface, which apart from anything else could provide you with a viewdata system for about £450.

Beelines is coming up with more add-ins, is also doing software now, and at the show had a neat carrying case for the Vic with its power supply and cassette recorder — price £57.50.

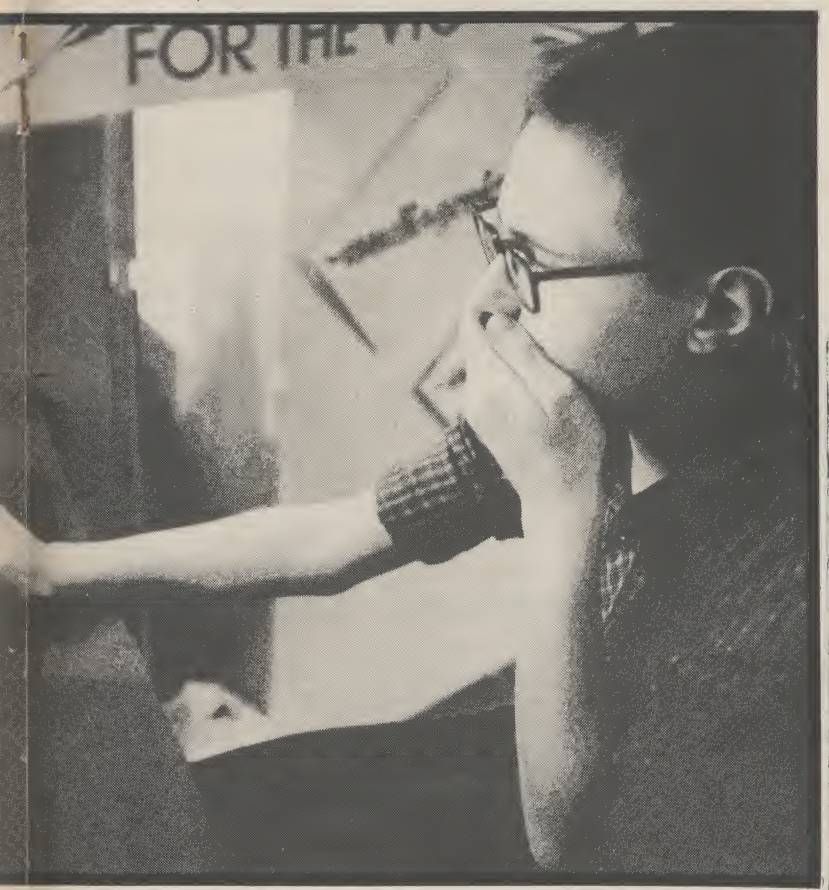
Rabbit Software: seemed to have more stand attendants than everyone else put together, and certainly had some of the best new games we've seen for Vic — try Frogger (great graphics) and Rabbit Chase (a generic cousin of PacMan and Gobbler). We didn't get a chance to try Rabbit's new non-games software, a word processor that needs 16K expansion and a database system that claims "powerful search, sort and calculation features" — we've asked for review copies.

Audiogenic: the biggest supplier of Vic cassette software had the usual scrum of eager games-players around its stand. Lots of goodies in the new catalogue, including the cassette 'magazine' Vixel (four games and booklet for £9.99) and the Hescom Vic-Pet link (use Pet to debug Vic programs, use Vic as data entry terminal to Pet — see the news item on Simple Software, which is also selling it).

Datatronic: a Swedish company looking for distributors for its Vic cartridges. These look great — neat, robust, reliable, and cheap too!

They all do serious things: Vic Stat for instance gives you extra commands for barcharts, plotting, an exact printed copy of what's on the screen, and a bunch of statistical functions. We like the idea of plug-in languages other than Basic, and Datatronic has FORTH on a cartridge. One of the pics show a very neat low-cost modem that must be a real competitor for Commodore's own modem (when and if it appears over here). Then there's Vic Switch, a bargain at £6 — it lets you connect up to eight Vics into one disk drive and printer without you having to plug and unplug everything all the time). A clever gismo called Vic Rel plugs into the user port and gives you six relay outputs plus two inputs: so with this you can control things — central heating, burglar alarms, train sets, whatever. Technically there's nothing special about that, but the price is so good — around £20.

Le Commode: bonjour to notre lecteurs Franglais qui ont un temp dur understanding le **Vic Computing**. Votre prayers sont answered avec un fairly nouveau magazine for utilisateurs des Vics, Pets, et CBMs. Il s'appele **Le Commode** et nous bumped into the editor/founder/owner as he was making un promenade de le show: if you have the French, it's a bon read in a nice style. Four issues a year costs FF120 (we think): try contacting **Le Commode** at 28 rue Vicq d'Azir, 75010 Paris.

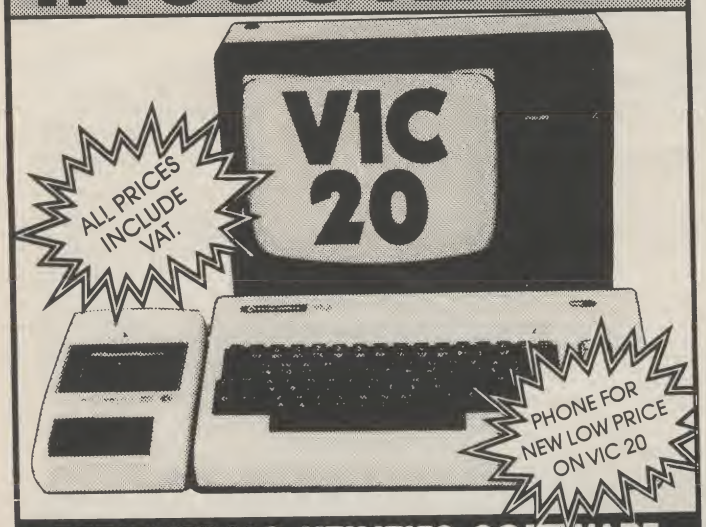


Stack Computer Services: nice people there have promised us a bagfull of their goodies for review to show why their stand was so busy. See the ad in this issue: the light pen at £25 looks fine, and we really liked the look of the Stack expansion unit — cheaper than Arfon's, and you get individual switching of each slot (only four slots though).

Arfon: was there with its own highly-rated seven-slot expansion box, as reviewed by us. On its stand the company also had five 'new' cartridge games apparently acquired from an Australian source — which turned out to be copies of five cassette games Audiogenic sells, so there were a few red faces and hasty withdrawings of the offending products when the truth emerged. Someone seems to have pulled a fast one on the Welsh wizards.

Alphatronic: showed the prototype of an expensive (£50) but very classy light pen, stainless steel rather than plastic and connected to the user port rather than the joystick port. Serious users only need apply, we should think: but if you do want a top grade light pen for business or industrial applications, it would be worth considering.

VIC 20 IN SCOTLAND



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Vic Communications: The RS-232 Interface

by Jim Butterfield and Jim Law

If you'd like to exchange information with other computers, you're in luck. British Telecom has thoughtfully covered the country with telephone wires that can be used to carry computer data; there's a device called a modem which can sit between your Vic and your telephone to convert between the digital data your computer likes and the analogue signals the phone system needs; and the Vic has an RS-232 interface built in, which simplifies communications.

More about the modems in a future issue. This time around, sit back and learn about the RS-232 bit from these Toronto-based maestros.

The Vic has really good communications potential built in. It's versatile and sophisticated: you can set transmission speeds and other characteristics. Buffering gives you a nice bonus: after you deliver characters to the interface, you may go about your computing business and the characters will be sent at the proper time. Similarly, input characters can be collected while you are doing other things, allowing you to pick them up at your own convenience.

The interface is called RS-232 (more about that later). Its versatility makes it very useful, but there are a couple of drawbacks.

First, you can't use the serial disk/printer port or the cassette tape while the RS-232 is in gear. You could stop the RS-232, fire something out to printer or disk, and then resume communications; but that's sometimes awkward to do. Second, the Parallel User Port and the RS-232 interface are the same connections, so it's difficult to use them both at the same time. If you are planning to sense a bunch of switches on the PUP and report their status over a communications line, you'll have some headscratching to do.

The RS-232 connection

RS-232 is a communications standard that defines a whole bunch of wires (25) for connecting a terminal device (that's your Vic) to a communications device (that's a modem). it defines what the wires do. It defines a standard connector (which the Vic doesn't have). And it defines standard voltages and currents (which the Vic doesn't observe).

Although all the RS-232 connections are defined, they are rarely all used. The most important connections are these:

We should mention that the Vic leaves RTS on all the time just to keep the modem on its toes. Two more connections are fitted to the Vic but not used: RI and DCD connect to pins F and H. But you won't need to worry about them unless you're heavily into communications.

Hardware

We mentioned that the PUP connector is not a standard RS-232 connector, and the voltages furnished by Vic are not standard RS-232 voltages. This means that you'll need an adaptor to hook into your modem. Commodore should make these available soon.

If you're not willing to wait, or if you just want to make your own adaptor, two possible circuits are described below. The first uses discrete parts and any well-stocked electronic junkbox should harbour the necessary items. The second has minimum parts, but the ICs may be hard to find. If you are not handy with a soldering iron, perhaps a friend or a local electronics buff could assemble the interface for you: it's not a difficult project.

The simplest way to connect the Vic is with just the two data lines and ground. This 'three-wire' connection will work with most modems and any printer where handshaking is not a problem. If you are using the 'junkbox' circuit make only as many circuits as you need: one input and one output should be enough for a modem.

Figure 1 — Output Circuits
Figure 2 — Input Circuits
Figure 3 — Power Supplies and Connection Diagram
Figure 4 — Vic User Port

Making it work

The RS-232 interface is in place in your Vic as device number 2. So all you need to do is to OPEN device 2 (for example, OPEN 1,2) and you may send and receive to your heart's content (PRINT#1, "ANYBODY THERE": INPUT#1,R$). But you'd better know a few things about how it works before you do that.

Speed and code and stuff

The signals you are sending to the modem are serial. That means that a character is not sent all at once . . . the bits are sent one at a time at a certain speed. You must set that speed, and arrange a few other administrative details.

We need to signal speed, code, parity and even the type of modem handshake we want. To open a 300 bits-per-second channel we would code:

OPEN 1,2,3,CHR$(6)+CHR$(0)

The value of 6 sets the speed to 300 bps; 5 would set 150 bps and 8 would set 1200 bps. We have turned off parity, assumed 8 bits, and assumed ordinary ("simple 3-wire") RS-232 interfacing.

At the same time that we do this OPEN, something else happens: the Vic grabs two buffers for input/output use. It takes them from your available Basic space; try the above statement followed by a PRINT FRE(0) and watch 512 bytes disappear.

The missing bytes will be returned to you when you say CLOSE 1.

Signal	Description	Edge Connector	RS-232 Connector
From modem to Vic:			
Data Rcv	Serial data input	Pins B and C	Pin 2
DSR	Modem OK	Pin L	Pin 21
CTS	Modem ready to transmit	Pin K	Pin 4
From Vic to modem:			
Data Xmt	Serial data out	Pin M	Pin 3
DTR	Vic OK	Pin E	Pin 5
RTS	Vic ready to transmit	Pin D	Pin 6
Ground connections:			
Gnd	Signal ground	Pin N	Pin 7
Pro	Chassis ground	Pin A	Pin 1

There's another snag. These buffers are set up in the top of memory; if you have any strings stored up there you'll be in trouble. If you're going to use the RS-232, your program should OPEN it as its first command — that way there's no chance of confusion. Remember to CLOSE when you're done.

Working the channel

You send with PRINT# . . . and your program will be able to continue immediately while the data is sent. If you happen to fill up the buffer, the PRINT # will wait; you won't lose anything.

You can receive data with INPUT # . . . but it's a little dangerous. INPUT of any sort always waits for a RETURN character to arrive; if it never arrives, your program will hang forever. Better to use GET #, which will give you back a character if it's there, otherwise it will return a null string (""). If you don't GET characters often enough, you will eventually end up with a full buffer and start losing things.

Errors are reported to you via the ST variable. This changes character completely; ST loses all of it previous meanings the moment you open the RS-232. There's a wide variety of things it can report; for the moment, we'll make it simple by observing that if ST is not zero, there's something wrong. Each time you access ST, it will be cleared back to zero. You can tell if you're having communications problems and even count the errors if you like.

A really dumb terminal program

This program will talk to a modem connected as described above. Seven data bits and mark parity are assumed. Only upper case letters are sent, but they will print on the Vic as lower case because no conversions are done.

```
10 OPEN 1,2,3, CHR$ (38) + CHR$(160)
20 GET A$ : IF A$="" THEN 60
30 IF A$=CHR$(147) THEN 90 : REM
   CLEAR/HOME QUITS
40 A=ASC(A$) AND 127 : IF A=20
   THEN PRINT #1, CHR$(8); : GOTO
   60
50 IF A>31 OR A=13 THEN
   PRINT#1, CHR$(A);
60 GET#1, A$ : IF A$="" THEN 20
70 A=ASC(A$) AND 127 : IF A=B
   THEN PRINT CHR$(20), : GOTO 20
80 IF A>31 OR A=13 THEN PRINT
   CHR$(A);
90 CLOSE1 : END
```

Summary

It's fun. It's sophisticated. But it is a little complex, and experience will be needed before you feel completely at home with the Vic's communications features.

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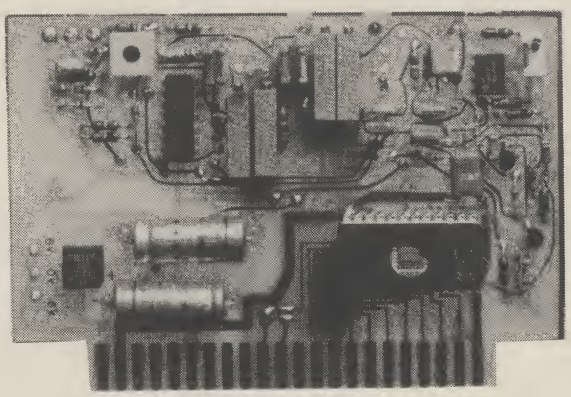

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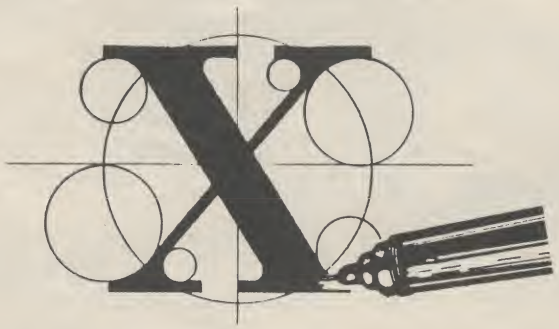

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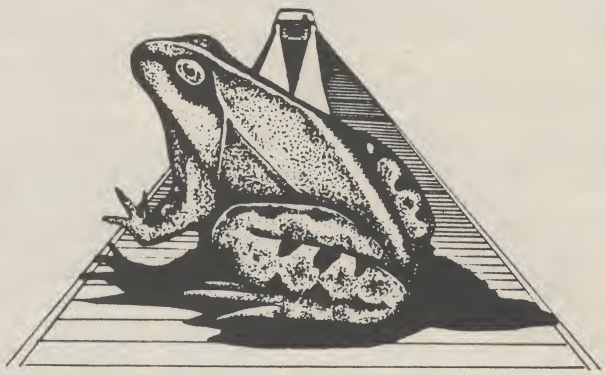

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Using Sinclair disks?
The answer from Tommy

Here is a popular query: "Can I use a Sinclair disk drive on my VIC?" The answer to this one is very short — no!

The main problem is obviously electrical; a complicated interface would have to be designed and built, and that would probably eat up most of the price advantage. In addition, there is lot of software needed to make the disk unit look like a 1540 so that it could be used by a Vic. Even if somebody did produce such an interface and software, the resulting hybrid wold not be as powerful and reliable as the Commodore unit, and probably not much cheaper.

Many of you have written to complain of mistakes, in the various books written relating to the Vic. While I admit that even **Vic Computing** suffers from the occasional typo, we at least have the excuse that we are working to a deadline. Some of the books I have reviewed recently (no names to avoid the libel suits!) do not appear to have even been proofread. Personally, I might be able to make sense of the errors (although I cringe everytime I see a "seperate" or "compatability") someone who has just started to learn about computers has really got no chance at all. We must improve our standards if we are to compete with the excellent products which come from the States — like books from Messrs Leventhal and Zaks, to name just two.

Several people have also asked about moving objects around the screen. I am afraid that you will have to do it the hard way, by moving the object dot by dot (a job for assembler, obviously). There is no equivalent to the Apple's shape table facility which makes plotting moving objects very easy, as well as scaling and rotating them. We will have to wait until someone produces an add-on ROM with such a feature (hint).

And now to something completely different:

Dear Tommy, I have tried to produce files on tape for handling data. I wish to produce 'Write to Tape' files as on page 111 of the Vic Handbook, read them with programs as on page 112, and then add additional data to be read by the second program. However, nowhere can I find how to produce a program to update an already-written data file. Perhaps you can help me.

The kind of file we use on most micro cassette tapes is called "sequential", meaning that when we process the file, we start at the beginning and work our way through to the end.

There is a second type of file called "random": it is found on disks and expensive tape systems. Here we can go to any record in the file identified by a record number, read it, modify it, and write it back.

Unfortunately, you can't do this with a sequential file — though some systems do allow you to add extra data on to the end, a process called "appending".

If you wish to update a data file on tape, what you have to do is to read it all into memory, update it there and then write a new file from scratch. I am afraid that if you want a more powerful system you will have to save up for a disk unit.

Dear Tommy, Why is it that on my Vic, if you press CNTRL-RVS, the reverse-R character appears sometimes but not all the time? Also, what is happening when the cursor stops flashing when entering a program and no key works? The only way to regain control is to switch off and on again.

The RVS character, like the cursor control characters, is only visible on the screen when the Vic is in "programmed cursor" mode. This mode is entered when you press the quotes key (") or the insert key. In the first case the Vic reverts to normal operation when you hit another quotes character; in the second that happens when you have used up all the "insert" characters by keying normal characters.

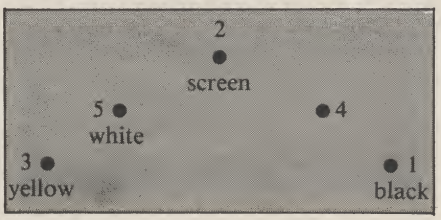
It is very easy, if you are editing a line, to get back into normal mode by putting in an extra quotes character. If you press a control character and nothing happens, you can either put in a quotes character and then delete it, or press the insert key to go into programmed cursor mode.

Your other problem sounds a little more serious. The Vic should not go completely dead when you are entering a program. Assuming that you are not doing any POKEs to dangerous areas, it seems that something is wrong with your machine; get it checked out by your dealer. If your Vic does die because you have POKEd something you should not have done, you can usually recover by holding the STOP key down and pressing RESTORE.

Dear Tommy, The wires connected to the pins in the socket which goes from the computer to the modulator have become loose. Since I do not have the colour code I fixed them up by trial and error, but I am no technician. I wrote to the Vic people but had no answer; could you give me the necessary information?

Here is a diagram giving the connections for the plug. The thing to notice are that the numbers follow the DIN standard, and should be marked on the plug.

The snag is that the numbers are on the **front** of the plug, that is the opposite end from the conections. So if you do not have them marked on the plug, remember to turn the numbers round as you look at the plug from the back to make the connections.



Dear Tommy, Does Commodore sell or have any modulators for VHF for the Vic? I want to use my machine on my B&W TV but I can't because there are only UHF ones here. Any ideas?

I am afraid that I do not know of anybody producing VHF modulators for the Vic; but I am sure that if anybody does make such an article, I will be deluged with letters from readers telling me about it!

One thing you could look out for, perhaps in second-hand TV shops, is a device known as a 'converter'. These were produced during the changeover from the VHF to UHF standards to enable the old VHF sets to receive the new UHF TV signals. If you can find one of these in good order, it should enable you to run your Vic on a VHF TV. Unfortunately it does introduce yet another conversion operation on the signal, so you cannot expect a perfect display — especially if the B&W set is getting a little long in the tooth.

Dear Tommy, I have the TV which is used in the Vic advertisement but I find that I cannot tune it correctly. I cannot close the tuner panel and I canot use most of the border and screen colours. I usually have to POKE 36879,8 (black) to be able to use my Vic. I have to change the colours in programs before I can use them.

The fault must be in one of three things: the TV, the Vic or the modulator. I presume that the TV works correctly as a TV, but I am a little puzzled by your reference to the tuner panel not closing. Has this been damaged at all? If so

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Tommy's Tips

the set may need a trip to a TV service engineer.

Assuming that the TV is OK, that leaves the Vic and modulator. The easiest thing to do is to try them out on another set, perhaps borrowed from a neighbour. If you cannot do this you should take the Vic and modulator back to the dealer you bought them from. He should be pleased to try them out for you, and replace them if they are still covered by the warranty.

Dear Tommy, I bought a Vic last Christmas for my kids. They think it is great — when they can get their dad off it. Lately I have run into a problem which is causing us a lot of headaches and seriously impairs what we are able to do on the Vic. I find that we can load kprograms from tapes but saving them on tape or on disk has become practically impossible. For although the video tells me that the disk is saving, when I verify there is invariably a FILE NOT FOUND error.

I recently had the same problem with the printer, which, when asked to list a program would only list the first couple of lines or stop halfway through a listing. My kids have undoubtedly switched off the floppy while a disk has been in. Could this in any way have affected the DOS? If so I cannot see how or why this affects my saving on the tape.

This is an interesting problem! It sounds very much like a hardware problem — possibly more than one. To find out exactly where the problem lies may be more than I can hope to achieve by post; but we can try a little detective work, so hang about while I get by deerstalker and meerschaum.

We must be sure that the problem is not being caused by a mistyped POKE statement wrecking things for us. If you just turn the Vic on, LOAD a program and then **without** running it or doing anything else SAVE it again, does it save properly? If so then check all your POKEs and SYS statements, because they could easily be confusing the Vic.

Also take out any add-on memory expansions or cartridges — if they are faulty they could well produce these symptoms. Try using a new tape or disk.

If you are sure that it is not the programs themselves that are causing the problem, we must suspect the hardware. Just about the only part of the Vic shared by the disk, printer and tape are the two VIA chips (6522): but I cannot think of any reason whey should should read and not write. So, the best thing to do I am afraid is return it to your dealer for attention.

Dear Tommy, Can you tell me the address of the VIA output ports?

The Vic has two VIAs. One of them has its output ports dedicated to the keyboard, so these are not usable for other functions. The other VIA, apart from a few pins tied up with the serial port, has all the lines from the output ports connected to the user port. Here are the connections and addresses for port A on VIA number one ($9111):

Bit no.	Function
0	Serial CLK in
1	Serial DATA in
2	JOY0
3	JOY1
4	JOY2
5	Light Pen
6	Cassette switch
7	Serial ATN out

All the lines from ports B, including CB1 and CB2, are available at the user port. Part B is at $9110.

You should note that the interrupt request line from this VIA is tied the processor NMI input, not IRQ. Both the timers on this chip can be used, although timer 1 is also used for the RS232 port.

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Routines
by Chris Preston

Most programs consist of a selection of more or less standard subroutines, linked together by a program. Experienced programmers build up subroutine libraries covering a wide range of functions: input, output, data formatting, calculations and so on. Writing programs then becomes simply a matter of hanging together a series of subroutines.

Well, maybe that is a little bit of an oversimplification. But basically it is true that you can cut down the time it takes to write a program if you do have a subroutine library. What we aim to do in this series is to give you one! We want some **real** subroutines that definitely do work, and that is where you come in. Stop looking over your shoulder, it's you I'm talking to. You must have some little routine somewhere which you are proud of and would like to pass on. You even get your name in print to boot! So go on, send us a listing and an explanation of what it is and what it does; then buy ten copies of **Vic Computing** to give to all your friends. They will be impressed!

Memory expansion

One of the first problems about the Vic is the fact that large parts of memory move around if you fit any memory expansion to the thing — the screen and colour memory areas, for example, not to mention the Basic program itself.

You do not want all your programs to fall down if you upgrade your Vic. So if you are POKEing into the screen or colour memory areas it would be nice to know where they are.

By the way, I know that this business of things moving around has been published in every Vic-related magazine since the thing first came out: but new Vic owners may not have read any of them, and we want this 'encyclopaedia' of routines to be just that: encyclopaedic.

There are in fact quite a few ways of finding out whether memory expansion has been fitted or not, so you may well see other ways of doing this. Here is a routine which will do the trick:

```
100 S=7680 : C=38400
110 IF PEEK(644) >32 THEN S=4096 :
  C=37888
```

The routine tests memory location 644, which holds the most significant byte of the top of physical memory. This is not the same as locations 55 and 56, which give the top of memory accessible from Basic: locations 643 and 644 give the actual top of memory in the machine. The two variables S and C point to the screen and colour memory areas respectively.

You can then use these variables throughout your program whenever you want to POKE directly onto the screen. If you now fit extra memory, or run the program on your kid brother's Vic which has not got memory expansion, the program will still work because the values of S and C will change automatically.

Formatted output

Many programs print their results, either on the screen or a printer, in a carefully defined way. It is important to be able to print a value or a string knowing exactly how long it is. This makes it easy to TAB to the correct place for the next column, or to use spaces to do the same task.

Personally I prefer to use a string of spaces rather than TAB, because I can then send the screen to the printer or the disk as a file with equal ease.

Many printers have TAB facilities, but the actual method varies considerably from model to model, so I would rather keep clear of such complications. If you do use printer-dependent features, what happens if you change your printer?

OK, so we set up a long string, say 80 or 132 characters long, and we can then select a variable number of spaces using LEFTs:

```
10 SP$=""
100 PL$=PL$+LEFT$ (SP$, 30-1)
```

We can pad a string to a specific length in the same way:

```
100 Z$=LEFT$ (Z$+SP$,10) :
  REM LEFT JUSTIFIED

110 Z$=RIGHT$ (SP$+Z$,10) :
  REM RIGHT JUSTIFIED
```

What about numeric values? If we have a value, V, we might want to round this to, say two decimal places and pad it to 15 characters.

```
100V=*100+0.5 : REM ROUND TO 2
  DEC. PLACES
110V=INT (V)/100
120 Z$=STR$(V) : REM TAKE STRING
130 Z$=RIGHT$(SP$+Z,15) : REM
RIGHT JUSTIFY
```

String sort

Another very common requirement is to be able to sort a series of strings. One reason why we do not see many programs using sorts is because sorting is quite a slow process. Ideally, a sort should be written in assembler if there are a large number of items to be sorted, but that is going a little deep for this column!

What we want is a shortish Basic routine which can cope with reasonable numbers of items, and here it is.

```
1000 M=N
1010 M=INT (M/2)
1020 IF M=0 THEN RETURN
1030 FOR J=0 TO N-M
1040 FOR I=J TO 0 STEP - M
1050 L=I+M
1060 IF A$(I)<= A$(L) THEN 1090
1070 Z$=A$(I) : A$(I)=A$(L) :
A$(L)=Z$
1080 NEXT
1090 NEXT J
1100 GOTO 1010
```

The strings to be sorted are in an array A$, from A$(0) to A$(N). You can easily change the routine to sort numbers by chnaging all the A$ to A.

This is a simplified form of the 'shell' sort technique. There are faster sorts for large numbers; but in terms of power per line of Basic program, I think it can't be beaten. In the form given above it will sort 100 records in about 15 seconds, but it is of course dependent on garbage collection — if you have a lot of string arrays and only 200 bytes free it will take a lot longer!

The simplification occurs in line 1010. We are in effect halving the value of M each time, which means that we are doing a lot more sorting than we need to. If you know exactly how many items are to be sorted, you can tweak the routine by calculating the values for M for each pass, which can halve the time required for the sort. This does require a bit of maths, so we will leave it to those who are really keen to look up the formulae in one of the standard textbooks.

Disk directory

One of the problems of the Vic, which also occurred on the 3000 series Pets, is that you cannot get a directory of the disk without losing your program. Or at least, you couldn't until now:

```
60020 OPEN 14,8,0,"$0"
60030 FOR I=1 TO 8: GOSUB 61000 :
  NEXT
60040 DN$=" " : FOR I=1 TO 16
60050 GOSUB 61000
60060 DN$=DN$+A$
60070 NEXT : PRINT DN$
60100 FOR I=1 TO 20
60110 GOSUB 61000 : IF A$=CHR$(0)
  THEN I=100
60120 NEXT
60130 FOR I=1 TO 4
60140 GOSUB 61000 : IF ST THEN
RETURN
60150 NEXT
60160 F$=" " : F=0 : FOR I=1 TO 30
60170 GOSUB 61000
60180 IF A$<>CHR$(34) THEN 60210
60190 IF F=1 THEN I=100 : GOTO
60220
60200 F=1 : GOTO 60220
60210 IF F=1 THEN F$=F$+A$
60220 NEXT
60230 PRINT F$ : GOTO 60100
61000 GET #14,A$ : IF A$=" " THEN
  A$=CHR$(0)
61010 RETURN
```

Sorry if it looks a bit long, but there it is. If you stick it at the end of your programs, you can call it with a GOSUB and get directories at any time. You can even be very posh and display a directory whenever you ask for a filename in your program!

The way it works it really quite simple. Line 60020 opens the disk directory (drive 0) as a program file, and starts to "LOAD" it, one character at a time.

Many of the funnies in the rest of the program are just to throw away bits of the data that we do not want. Line 60030 just skips to the start of the disk name, while lines 60040 to 60070 read the name and print it. Lines 60100 to 60120 skip to the end of the 'program line' as it is received from the disk, and lines 60130 to 60150 ignore the garbage at the start of the program line. The test in line 60140 checks for the end of the 'file', that is the end of the directory.

In 60160 to 60220 are the real meat of the routine. What we are doing is searching for the start of the filename — which is indicated by a quotes character, CHR$(34) — and setting a flag F.

We then start putting characters into the filename variable F$ until we find another CHR$(34) which tells us that we have reached the end of the filename; so we finish the loop, print the filename and go back to line 60100.

. . . Over to you

Well, that's all the help you are going to get from us this month! What we want now is a postbag full of ideas and tips from you, our beloved readership. Can we make some pleas if you are sending in routines:

1. Make sure they work! Don't forget they will be printed with your name on.
2. Include some indication of what the thing does and how it works. There is no need to go into very fine detail, though, and don't worry about flowery prose — we can rewrite it to read like Hemingway for you.
3. Preferably submit a listing from a printer rather than a handwritten copy. It is easy to make mistakes both in your copying and our reading, but listings can go straight into the magazine without needing to be copied.
4. Tell us about your equipment, memory expansion, disks, joysticks etc.

OK fans — let's have 'em.

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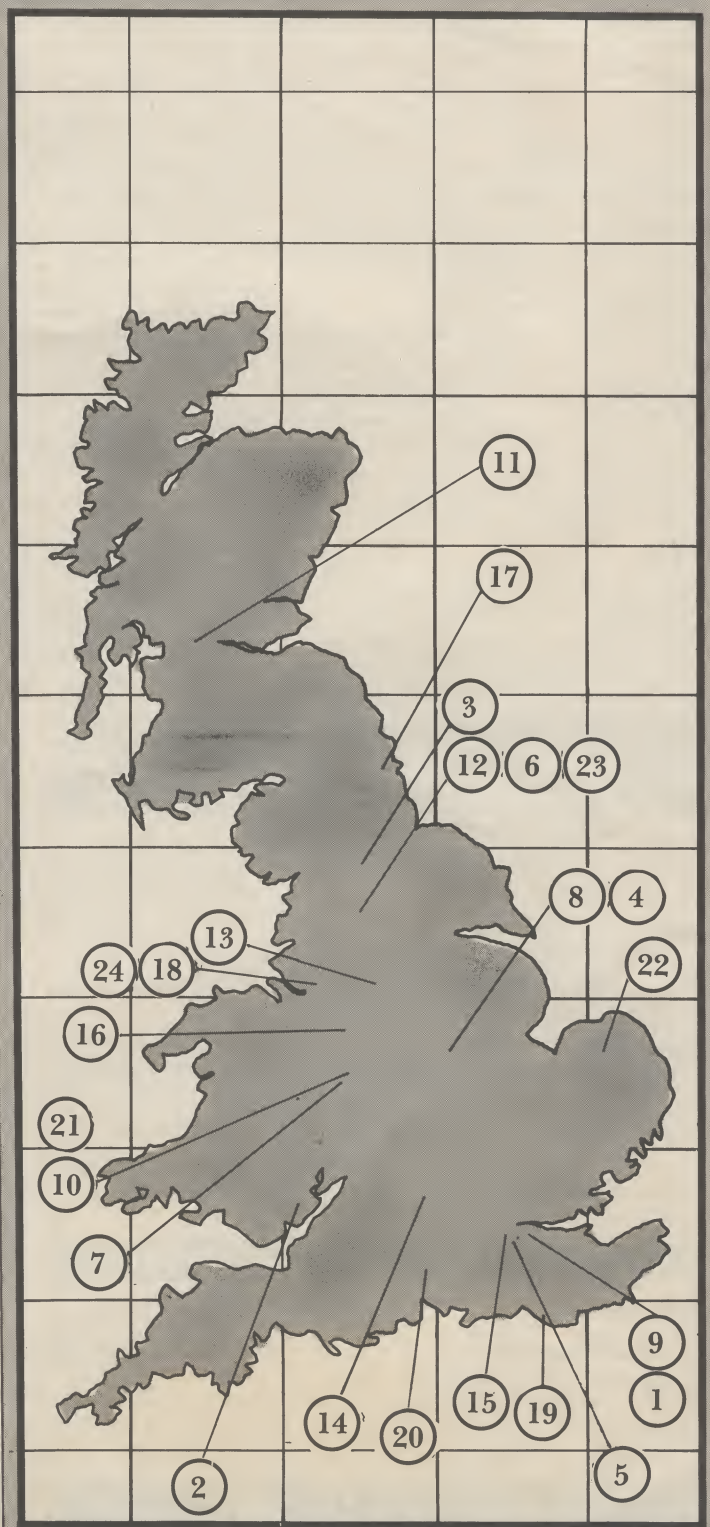


Vic as Artist

by David Pletts

The Vic makes a fine tool for multi-coloured computer graphics. These three programs by designer and printer David Pletts all require the Super Expander cartridge.

MOVE-A-SHAPE allows the user to create a straight-line shape with up to five Points and move it from the original position on the screen to another position decided by the user, with as many in between steps plotted on the screen as is chosen. Designs such as 'curve stitching', 'nested' rectangles, and parallel lines can be created.

Up to four different designs may be plotted, each in a different colour if required: however, if designs of different colours overlap, some colour interference results.

The program first lists the available colours (for Graphic 2 mode) and requests input for the screen (background) colour. You are then asked to input the number of designs required and the colour of each design.

Next, taking each design in turn, you are asked to input the number of points, for example, entering '2' will give a straight line and '3' will allow two lines joined at a common point.

The co-ordinates are then requested: first X which gives the position across the screen (10 is on the left) followed by Y which gives the position down the screen (10 is at the top). No image appears if co-ordinates smaller than 10 or greater than 1020 are chosen.

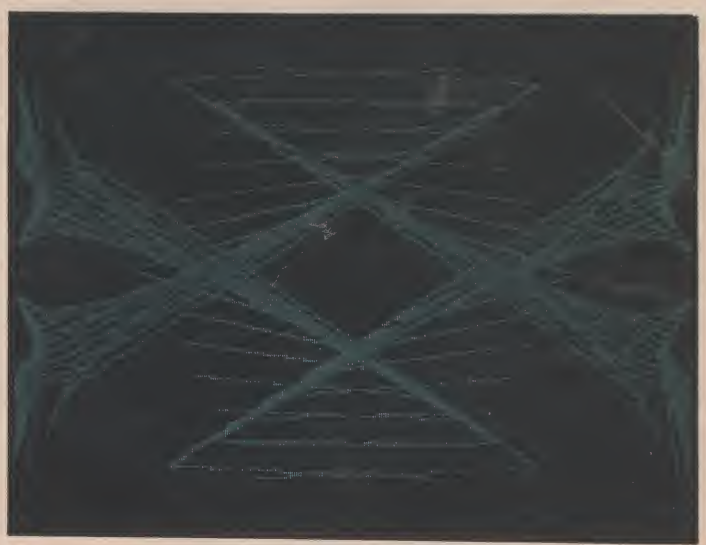
Having selected co-ordinates for the first image, the same is requested for the second image which is where you want the first image to be 'moved' to.

The number of steps of movement to be shown on the screen is the final request, and this can be any number required, although steps greater than 30 or so result in more-or-less solid shapes created rather slowly.

After completing the design(s) the program clears the screen and begins plotting all over again, continuing to do so until the RUN/STOP key is pressed. To exit from the program press RUN/STOP and RESTORE together.

For success it is essential to read and obey the screen prompts carefully, advises David.

```
30 REM PLOTII
35 DIMX(4,2,5),Y(4,2,5),Z(4)
40 PRINT"■*** MOVE-A-SHAPE ***":PRINT
50 PRINT"CHOOSE COLOURS"
51 PRINT
55 PRINT"0:BLACK
56 PRINT"1:WHITE
57 PRINT"2:RED
58 PRINT"3:CYAN
59 PRINT"4:PURPLE
60 PRINT"5:GREEN
70 PRINT"6:BLUE
71 PRINT"7:YELLOW
72 PRINT
75 INPUT"SCREEN";B:IFB>7ORB<0THENPRINT"■*NUMBERS BETWEEN 0 AND","7 ONLY.":GOSUB
2010:GOTO50
76 PRINT
77 INPUT"NO. OF DESIGNS";E:IFE>4ORE<0THENGOSUB2000:GOTO77
78 FORD=1TOE:PRINT"COLOUR OF DESIGN";D;:INPUTZ(D)
79 IFZ(D)>7ORZ(D)<0THENPRINT"NUMBERS BETWEEN 0 AND","7 ONLY -":GOSUB2010:GOTO78
80 NEXT
115 FORD=1TOE
118 PRINT"■* DESIGN";D:PRINT
120 INPUT"NO OF POINTS (5 MAX)";P:IFP>5ORP<0THENGOSUB2000:GOTO120
125 PRINT"* NOW ENTER X THEN Y  CO-ORDINATES FROM 10  TO 1020 ONLY"
130 FORI=1TO2:PRINT"FOR IMAGE ";I:FORNA=1TOP
140 PRINT"POINT ";NA;:INPUTX(D,I,NA),Y(D,I,NA)
150 NEXT:NEXT
155 NEXTD
160 NA=NA-1
165 D=D-1
170 INPUT"■HOW MANY STEPS";R
175 FORD=1TOE
180 FORI=1TOR:FORF=0TOI-1:SP=SP+1/R:NEXTF
190 FORJ=1TONA
200 XX(J)=X(D,1,J)+(SP*(X(D,2,J)-X(D,1,J))):
YY(J)=Y(D,1,J)+(SP*(Y(D,2,J)-Y(D,1,J)))
210 IFJ>=2THENGOSUB1000
240 NEXTJ:SP=0:NEXTI
245 NEXTD
250 FORI=1TO4000:NEXT:SCNCLR:GOTO175
1000 REM PLOT ROUTINE
1005 GRAPHIC2
1010 COLORB,B,Z(D),Z(D)
1025 IFI=1THEN:DRAW2,X(D,1,1),Y(D,1,1)TOX(D,1,2),Y(D,1,2)
1030 DRAW2,XX(J-1),YY(J-1)TOXX(J),YY(J)
1040 RETURN
2000 PRINT"TOO MANY -"
2010 PRINT"PLEASE TRY AGAIN"
2020 PRINT:RETURN
```



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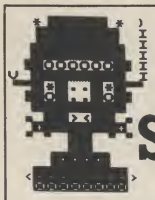

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```
100 REM PLOTII
110 DIMX(4,2,8),Y(4,2,8)
120 PRINT"■■■■■■■KOMPUTER  KALEIDOSCOPE":FORII=1TO4000:NEXT
130 GOSUB400:B=RR
140 GOSUB400:Z=RR:IFZ=BTHEN140
150 R=INT(RND(1)*14)+8
160 P=INT(RND(1)*6)+2
170 FORI=1TO2:FORNA=1TOP
180 X(1,I,NA)=INT(RND(1)*600)+10
190 Y(1,I,NA)=INT(RND(1)*600)+10
200 X(2,I,NA)=1020-X(1,I,NA)
210 Y(2,I,NA)=Y(1,I,NA):X(3,I,NA)=X(1,I,NA):Y(3,I,NA)=1020-Y(1,I,NA)
220 X(4,I,NA)=1020-X(1,I,NA)
230 Y(4,I,NA)=1020-Y(1,I,NA)
240 NEXT:NEXT
250 NA=NA-1
260 FORI=1TOR:FORF=0TOI-1:SP=SP+1/R:NEXTF
270 FORD=1TO4
280 FORJ=1TONA
290 XX(J)=X(D,1,J)+(SP*(X(D,2,J)-X(D,1,J))):YY(J)=Y(D,1,J)+(SP*(Y(D,2,J)-Y(D,1,J)))
300 IFJ>=2THENGOSUB340
310 NEXTJ:NEXTD:SP=0:NEXTI
320 FORII=1TO4000:NEXT:SCNCLR:GOTO130
330 SCNCLR:GOTO130
340 REM PLOT ROUTINE
350 GRAPHIC2
360 COLORB,B,Z,Z
370 DRAW2,X(D,1,1),Y(D,1,1)TOX(D,1,2),Y(D,1,2)
380 DRAW2,XX(J-1),YY(J-1)TOXX(J),YY(J)
390 RETURN
400 RR=INT(RND(1)*8):RETURN
```

KOMPUTER KALEIDOSCOPE, the third program, is a further development of SIMETRISHAPE, the difference being that all parameters are chosen at random by the computer. When a design is completed, there is a short pause, during which one gazes in wonderment at the results, after which a new design is created. This program will also continue until either the television or the Vic wears out!

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SIMETRISHAPE is a development of the first program that allows only one design to be created. This design, however, is given 'mirror image' treatment. The program, as the first, is self-perpetuating.

```
30 REM PLOTII
35 DIMX(4,2,5),Y(4,2,5)
40 PRINT"□*** SIMETRISHAPE ***":PRINT
50 PRINT"CHOOSE COLOURS"
51 PRINT
55 PRINT"0:BLACK
56 PRINT"1:WHITE
57 PRINT"2:RED
58 PRINT"3:CYAN
59 PRINT"4:PURPLE
60 PRINT"5:GREEN
70 PRINT"6:BLUE
71 PRINT"7:YELLOW
72 PRINT
75 INPUT"SCREEN";B:IFB>7ORB<0THENPRINT"□*NUMBERS BETWEEN 0 AND","7 ONLY.":GOSUB
2010:GOTO50
76 PRINT
77 INPUT"DESIGN";Z
79 IFZ>7ORZ<0THENPRINT"NUMBERS BETWEEN 0 AND","7 ONLY -":GOSUB2010:GOTO78
115 PRINT"□"
120 INPUT"NO OF POINTS (5 MAX)";P:IFP>5ORP<0THENGOSUB2000:GOTO120
125 PRINT"* NOW ENTER X THEN Y  CO-ORDINATES FROM 10  TO 1020 ONLY"
130 FORI=1TO2:PRINT"FOR IMAGE ";I:FORNA=1TOP
140 PRINT"POINT ";NA;:INPUTX(1,I,NA),Y(1,I,NA)
142 X(2,I,NA)=1020-X(1,I,NA)
144 Y(2,I,NA)=Y(1,I,NA):X(3,I,NA)=X(1,I,NA):Y(3,I,NA)=1020-Y(1,I,NA)
150 X(4,I,NA)=1020-X(1,I,NA)
152 Y(4,I,NA)=1020-Y(1,I,NA)
166 NEXT:NEXT
168 NA=NA-1
170 INPUT"□HOW MANY STEPS";R
180 FORI=1TOR:FORF=0TOI-1:SP=SP+1/R:NEXTF
185 FORD=1TO4
190 FORJ=1TONA
200 XX(J)=X(D,1,J)+(SP*(X(D,2,J)-X(D,1,J))):YY(J)=Y(D,1,J)+(SP*(Y(D,2,J)-Y(D,1,J
)))
210 IFJ>=2THENGOSUB1000
240 NEXTJ:NEXTD:SP=0:NEXTI
250 FORI=1TO4000:NEXT:SCNCLR:GOTO180
1000 REM PLOT ROUTINE
1005 GRAPHIC2
1010 COLORB,B,Z,Z
1025 IFI=1THEN:DRAW2,X(D,1,1),Y(D,1,1)TOX(D,1,2),Y(D,1,2)
1030 DRAW2,XX(J-1),YY(J-1)TOXX(J),YY(J)
1040 RETURN
2000 PRINT"TOO MANY -"
2010 PRINT"PLEASE TRY AGAIN"
2020 PRINT:RETURN
```

Dear Vic

Send us comments, queries and complaints: we'll answer everything we can and print anything that isn't boring or illegal. Address yourself to The Editor, Vic Computing, 39-41 North Road, London N7 9DP

A number of readers have written in to say that occasionally Rhinos appear to be able to move off the screen. The solution that I suggest is quite simple. Line 8020 can be expanded to make the same checks that are made for the players' moves. Simply shift the NEXT M from line 8020 onto a new line 8026, and add these two lines.

```
8020 FORM=OTO8:RM(M)=
     PEEK(FNA(X+FNX(M))+
     Y+FNY(M))
8022 IF(X=1AND(M=1ORM=
     5ORM=6))OR(X=22AND
     (M=4ORM>6))THENRM
     (M)=160
8024 IF(Y=OAND(M=2ORM=
     5ORM=7))OR(Y=21AND
     (M=6ORM=3ORM=8))
     THENRM(M)=160
8026 NEXT M
```

While you're at it, you may as well make the following alteration.

```
1025 FORI=1TO20:IFV(I)=0
     THEN1010
```

Tim Duncan, Cardiff

Please could you advise me where I can obtain educational programs for maths or English suitable for 7-10 year old.

M Lynch

We understand Commodore itself has commissioned a number of educational programs, and it is also actively seeking submissions from outside software writers in this area (as in others). As yet, the programs that have been released seem more appropriate to secondary schooling: but clearly the idea of 'home education' at all levels is going to be one of the more valuable uses for home computers in the next few years, so we can expect more action on that front.

Meanwhile, a number of Victuals submissions have been geared to kids of tender years — mostly teaching them maths or word recognition. We've printed a couple ourselves, and we are also considering doing two 'specials' on the subject of education. One will appear later this year as supplement in the magazine; the other will be a Vic Computing tape of relevant Victuals, ready to load and go and bearing a modest price. Watch this space!

With reference to the TINYMON program in the April issue, one point which may not have been made clear in the article is that it is necessary to save the program on the Pet from 0401 hex in order that the Vic relocates the program correctly, depending on its expansion. Saving from 0400 results in the three basic lines in the program being corrupted.

Indeed. And Jim Butterfield has also pointed out a transcription error in out printing of TINYMON which has caused some heartache among its users: the errant line in question should read

.: 0028 01 04 14 08 18 08 18 08

About your 'Dulcet Tones' article in February, I quote:

"Radio Netherlands has started transmitting 'telesoftware'..." Wrong. They've been doing this for years (not only for computing but also for other hobbyists).

"It seems to be working..." Wrong. It works.

"The Vic isn't among the computers catered for..." Wrong. They have developed a 'Basicode' which translates from one computer to another. It costs only 30 Dutch guilders for a cassette and interface.

"Would it work for CB..." No. I tried it, but only once — much too much interference.

Thank you very much for **Victuals** — very nice.

N Tonnenman, Diemen, Netherlands

We stand chastened.

First let me say that **Vic Computing** is a good magazine with sensibly written articles.

In the February issue there was a listing for Rhino. If you play this game you'll find a small error — move yourself to the bottom of the screen, then a Rhino chasing you may go off the screen.

This causes no problems **unless** you have added 8K or more of memory, then you start POKEing into the Basic area and start corrupting your program. One simple way around is to change line 8020 into the following two lines:

```
8020 FOR M=0 TO 8:
Z=FNA(X+FNX(M))+Y+
FNY(M): RM(M)=PEEK(Z): IF
Z>0+505 THEN RN(M)=160
8025 NEXT M
```

Hi-resolution graphics is easy when you add 3K extra memory. But what do you do when you have added more than 8K of memory? The place where you can put your custom characters is at the bottom of the Basic area! Then your program either corrupts or is corrupted by the custom characters.

Czes Kosniowski, Newcastle upon Tyne

Thanks for the Rhino tip. As far the graphics funny, an article from Chris Preston is due: it will address precisely this matter.

We bought a Vic-20 a couple of months ago and as complete computer beginners decided after having gone through the book which comes with the computer that it would be nice to have a few games for the children.

I note you do not recommend Tim Hartnell's book, which looked quite interesting. Do you recommend any similar books? I might say that for the over-40s your magazine (most of it) is quite incomprehensible — is there a SIMPLE introduction to computering?
Margaret Stringer, Dublin

'Computering' is quite a nice concept, meaning (one would suppose) to use a computer in general — as opposed to 'computing', which would then imply the specific use of a computer for a particular job. Ah, the glories of the language!

As to the points raised by Ms Stringer, we understand Tim Hartnell's current editions are much improved and debugged. Accordingly we now have no complaints about them. For a simple introduction, modesty forbids us to mention The Good Computing Book by one D Jarrett (published by ECC Publications at a very reasonable £1.95 — a new edition will be out later this year, though). We have just reviewed and can now recommend Don Munro's Starting with Basic on the Vic; this is a decent introduction to programming, to Basic, and to the facilities of the Vic.

I am an owner of a Vic-20 and I am very happy with it so far. But I keep looking for a chess game, but have not been able to find one. Could you let me know if there is a Vic chess game and if not is there likely one to be produced.

J Simpson, Stockton-on-Tees

The world's most popular computer chess program, Sargon, recently became available in a Vic version. Commodore's dealers should have it for about £25 including VAT — it's a cartridge, and is apparently pretty good.

In the June issue of Vic Computing some concern was expressed about the availability of **The Programmer's Reference Guide.** I bought a copy in January which set me back £20. I have regretted it ever since. Personally I prefer Nick Hampshire's publication which is one quarter of the size and contains twice as much information at half the price.

However, if anyone is still desperate to get hold of a copy, they can write to me and buy mine.
A. Penketh, Middleton, Manchester

See Todd's Lore for some more views on this.

Re Bo Carnerius' letter on RTTY in the February edition of **Vic Computing,** I enclose the listings of a program for the Pet to enable it to be used for send/receive RTTY.

Unfortunately it contains some machine code which is beyond my capability to convert for use with Vic. Can you help? Also, like Bo Carnerius I would like details of how to interface the RTTY demodulated signals with the serial port.

P A Slomon, Macclesfield

Surely this cannot be Peter Arthur Slomon, friend of the author's youth and a participant in the original editorial essay into inebriation at Rosie Truscott's house just outside Liskeard? No, probably not. RTTY buffs are referred to the September 1981 issue of the newsletter of the British Amateur Radio Teleprinter Group, which is the source of the Pet program this P A Slomon sent us.

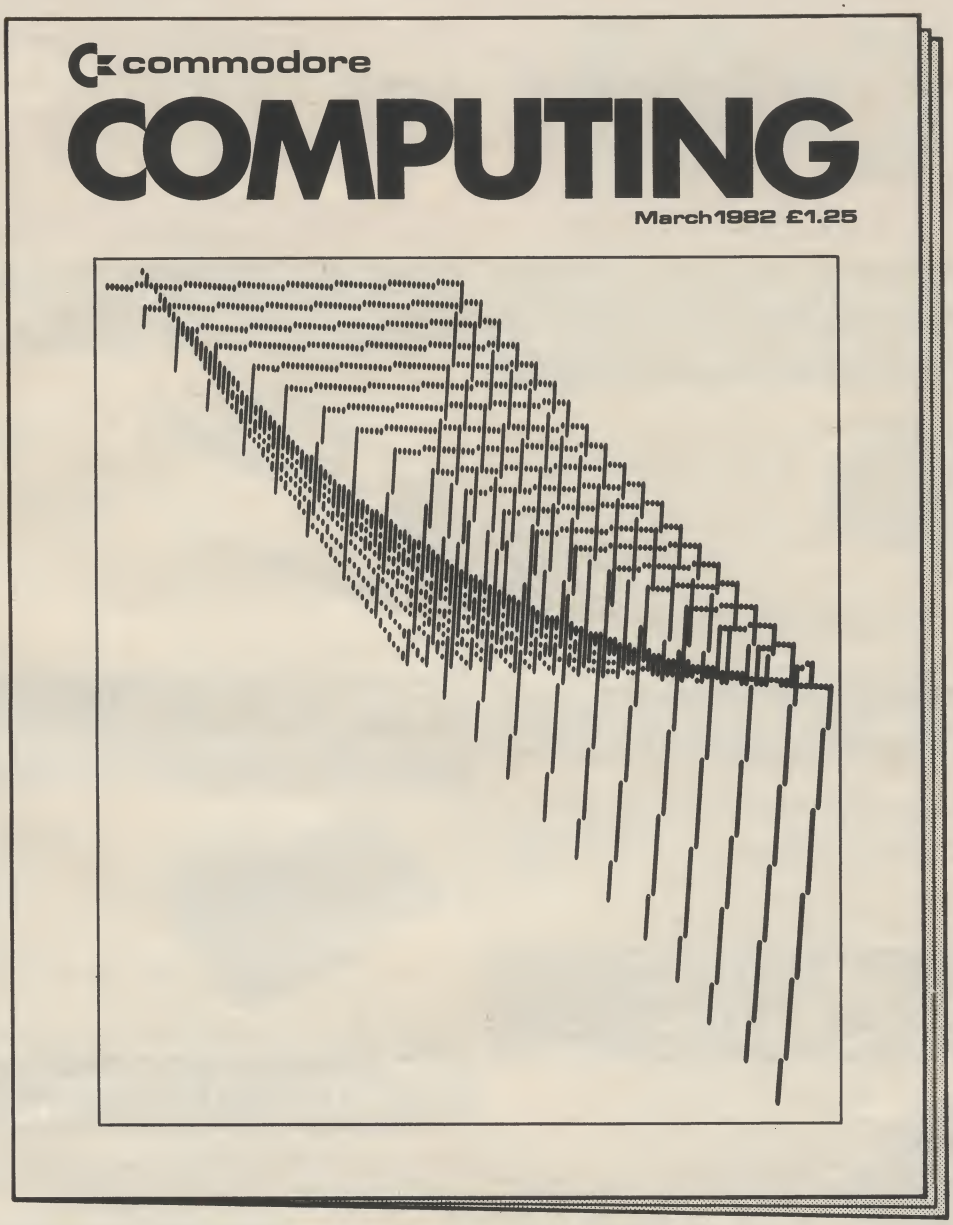
The machine code looks tricky, but there must be someone out there willing to have a bash at it. Any takers?

As for the interface, try calling 0525 372114. That is the Leighton Buzzard home of TAL Computer Division, which tells us it will have a plug-in RTTY interface with six baud rates from 45.45 to 150 and lots of automatic text formatting to control the Vic's return and line feeds — the kind of thing that some low-priced communications interfaces tend to omit.

Price will be about £50.

You can also try one of our advertisers, the Dutch company Computerworld. They have a Telex RTTY interface that sounds very similar at £89.00.

If you're interested in RTTY, incidentally, get hold of a 90p booklet called 'RTTY — the easy way'. (RTTY is a form of digital transmission that uses the five-bit Baudot code employed for telegraphy, if you didn't know.)



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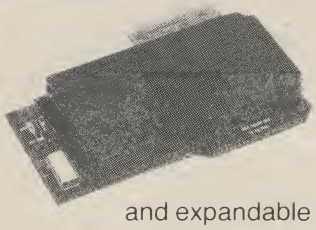

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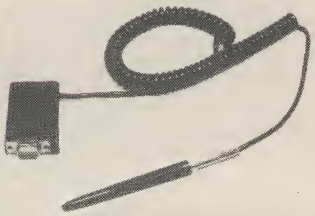

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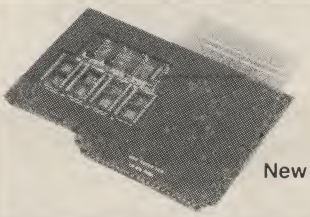

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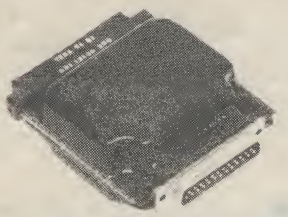

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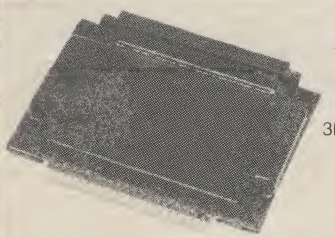

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